

# The Electragist

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Association of Electragists  
INTERNATIONAL

DECEMBER 1927

## It Looks Like a "Youngstown-Buckeye" Job and it is



The building shown at the right, the new Sherry-Netherlands Hotel at Fifth Avenue and 59th Street, at the entrance to New York's famous Central Park, is another one of the growing list of American skyscrapers and other notable structures whose owners and builders have played safe by protecting all electrical wiring in Youngstown-Buckeye Conduit.

These men know they can rely on "Youngstown-Buckeye," because it is built up to a high standard of perfection. The quality is not short-measured to meet price demands of those who build to reduce initial costs at the risk of incurring repairs later.

The owner of this Hotel is The Sherry Company, the Architects, Messrs. Schultze and Weaver, the Consulting Engineer, Mr. Clyde R. Place, the Builders, Messrs. Schroeder and Koppel, and the Electrical Contractor, J. Livingston & Company, all of New York City.

Play safe like they did with "Youngstown-Buckeye."

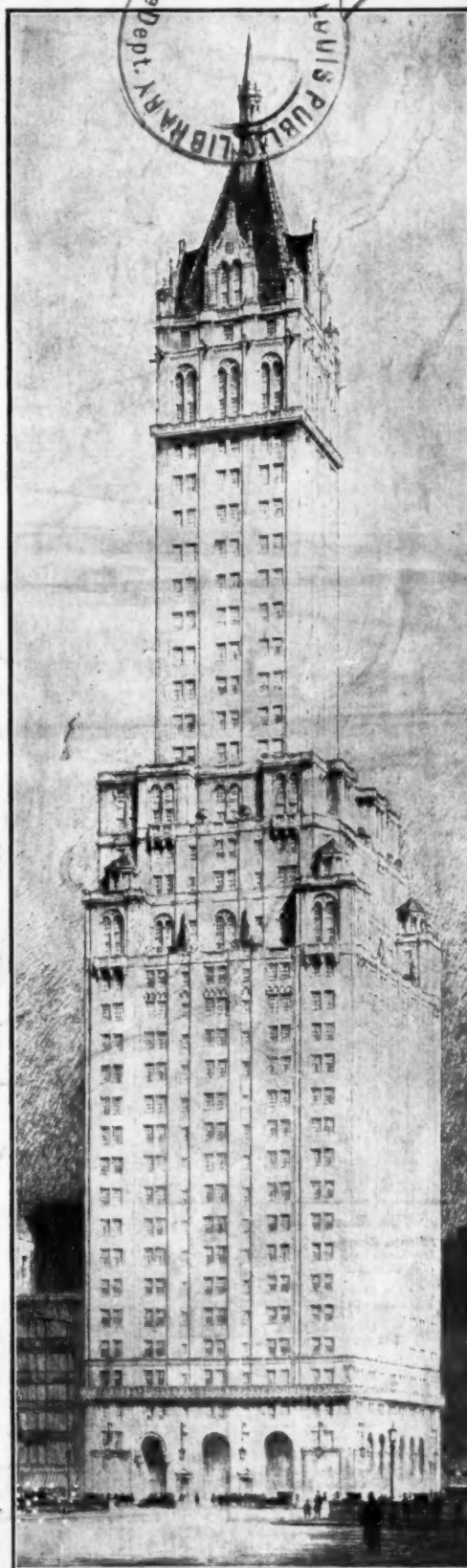
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YOUNGSTOWN—Stambaugh Bldg.

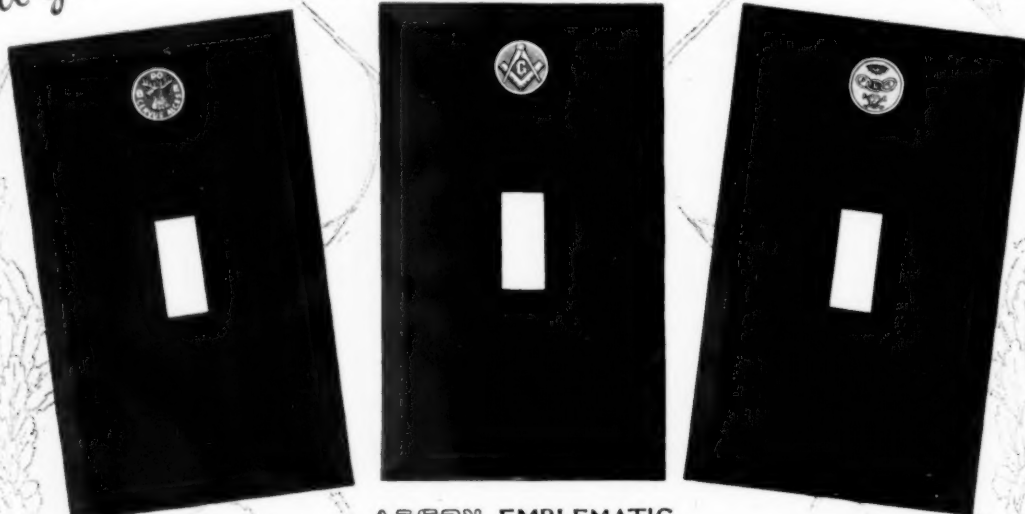
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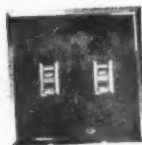
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# The Electragist

(The National Electrical Contractor and The Electrical Contractor-Dealer)

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No. 2

## What Constitutes A Motor Specialist?

By FRANK T. BROILES

International Electric and Machinery Co., Los Angeles, California;  
Chairman, Motor Section, California Electragists, Southern Division

THE nut-shell definition of a specialist will be found in your dictionary something like this: "a person devoting himself to a single branch of his profession or subject." A man cannot be considered a specialist, nor consider himself as such, until he has become *conscious* of the fact that one particular field in one particular industry interests him to the exclusion of other fields within fairly well defined limits—the limiting factor being the proportionate time, attention, and energy he devotes to his selected specialty as his regular daily work and means of livelihood.

Today there are hundreds of men in the country nominally "in the motor business" who buy and sell motors and motor control equipment, some of them in large quantities, who know no more about the construction, characteristics, proper application, and maintenance of this power equipment than a stock broker knows about the products of the concerns whose securities he handles. These traders are really "merchandising specialists," dealing in motors and equipment as only one of many classes of goods.

Then there is that large group of small electrical contractors, by virtue of whose business cards as bona fide electrical men, they are commercially in position to furnish and install motors (small motors usually) in connection with their wiring installations; but whose experience in power work and

**E**ARLIER in the year the Southern Division of the California Electragists started a motor section for the benefit of those of its members who specialized in power work. Of such apparent benefit was this work both to the motor specialists and the manufacturers that those most active in the work brought the idea to the Electragist convention at St. Louis with the result that a National Motor Section of the A. E. I. was formed. As F. T. Broiles was largely responsible for the idea and first chairman of the California section he was asked to put down on paper what he thought one had to be and do in order to be a motor specialist. Here is his idea. It may be that others won't agree. Your ideas are welcome whether you agree in whole or part or not at all.—The Editor.

whose facilities for repairing and maintaining service on power installations is practically worthless to their customers. Again, there are machinery dealers, small odd-job shops, and a host of such miscellaneous agencies from whom the public may purchase and does purchase its motors and motor accessories, but none of whom have any basis for guaranteeing the proper performance of the motors they sell nor the intelligent, specialized service so necessary in keeping those motors at work under infinitely varying conditions. These few classes

of existent motor dealers will serve to illustrate our ideas of what a "motor specialist" is *not*—if he is to deserve the name.

A motor specialist has come to be such after a careful and continued study of his peculiar relation to the whole motor business, and he has found out to his own satisfaction "where he fits." He has learned that in general a tripartite relation exists which includes the customer and the motor manufacturer at the extremes, with himself as the necessary medium upon whose judgment and experience the customer depends for the proper and satisfactory application of standard power equipment to the job in hand; and to whom the manufacturer looks for the maintenance of good customer relations. He must be familiar with comparative performances of different classes of power installations if he is to justify his existence to an exacting, hard-headed, dollars-and-cents industrial public which must "be shown." Merely to trade a motor for dollars is one class of business—merchandising, pure and simple; to sell a motor and *keep it sold* on the basis of its earning capacity for the customer is quite another. The man who can do business on the latter basis has met the first qualification of a motor specialist. The customer is glad to give him business because the customer is assured of a return on his investment; the manufacturer is glad to work with such a retail outlet because the manu-



facturer is automatically relieved of the necessity of keeping the customer sold, a factor conceded most important in any modern sales transaction, and perhaps the most difficult of actual accomplishment. Competitive practices and multiplicity of parallel lines in high grade motors and equipment, like other commodities, have naturally increased the buyer's advantage; and this condition may be met only by the man so well versed in his own special line of product and services, and sufficiently equipped to "deliver the goods," that he has something of far greater worth to offer the customer.

#### Advertising

The specialist who knows himself to be qualified has gone half the way, however. His superior knowledge and capacity for service mean little in his community unless the word is spread. He must therefore advertise his stock-in-trade by various methods, but to an extent whereby his potential clientele becomes thoroughly educated to *prefer* a specialist for its motor work. Specialty services today, like specialty lines of merchandise, must be advertised as such, because the public knows little of their value until it becomes duly informed.

Regarding his competitors, the specialist finds himself in a relatively desirable field, where none but dealers of his own calibre can compete. Only a small percentage of those who start in the motor business have either the interest or the persistence to establish themselves on the basis of super-service to the customer and super-representation of the manufacturers. The present competitive condition in the sale of new motors, resulting fundamentally from original overproduction by the manufacturer, is one which cannot long endure the test of real economy; and even now many manufacturers have commenced to analyze that condition with a view to separating the wheat from the chaff in the selection of their future retailing outlets. More and more are they coming to appreciate the necessity for *qualified* dealers, whose purchasing rights and advantages must be based upon the three C's of business integrity—Character, Capacity and Capital. Let the motor man who would deserve those rights and advantages as a specialist prepare to meet the requirements.

Here again it is difficult to draw sharp lines—to say, for instance, that a man

must have invested \$5,000 or \$6,000 or \$10,000 in his motor business before commercial recognition as a specialist is justified. The lines really must be drawn after he has served through sufficient actual experience to prove his status. It is certain, however, that *some* lines *will* be drawn; and one specific function of the new organization for retail motor men—the Motor Section of the Association of Electragists, International—is the establishment of standards, both technical and commercial, which may be cited as basic qualifications deserving of advertisement to the public and to the industry, and justifying their confidence in its members.

It follows that in any specialty, which by our definition is merely a branch of a profession, the specialist should devote a part of his time to the upbuilding of the specialty with which he is connected. This means that a motor specialist should be definitely affiliated with that group in his industry which seeks constructively to improve the conditions affecting his field of operation. Without that participation with his fellows in the discussion and solution of common problems—in the building of higher standards of business efficiency—in the process of self-development which means vastly more to his customers than is easily apparent—no motor man can keep sufficiently abreast of the progress in his line to merit distinction as a specialist. It is the purpose of the Motor Section of the A. E. I. to develop and maintain within its ranks a brand of capability for service to which the industry and the public alike may look for dependable performance.

#### Competition

If he is to enjoy the distinctive recognition of the manufacturer the motor specialist must qualify as a salesman. Sales competition is keen and too often wild and without intelligent economical control, due partly to the systems in use for promoting sales, partly to the methods employed in rewarding salesmen's services, partly to the immediate effects of over-production, but primarily to the ingrained trait of human nature which puts so often immediate individual gain, regardless of future advantage, before the more reasonable desire to build logically on a solid foundation. The motor specialist will have learned that the only profitable sales are those made on the positive merits

of the goods and services he can offer. And in learning this he will also have learned that in the motor business he can profit the most by confining his sales effort to a single satisfactory line of motors, a single satisfactory line of equipment, and a single satisfactory line of service—his own. At the same time he must be reasonably well informed on other lines, thus being enabled to give proper service to his own customers who may have chosen equipment of parallel lines, but who still prefer to retain him for repairs and maintenance. Such a modified specialization will permit his operation at the highest efficiency, and his tendency must be in this direction if he is to survive competition in the sales field.

#### The "New Era" Specialist

Many believe that the motor specialist should maintain a re-winding shop. It is true that a vast amount of business has been enjoyed through the past ten years in the re-winding and re-conditioning of second-hand motors. It is equally true that there will *always* be some demand for this class of work. It should be the specialist's responsibility, however, to make sure that his customer is gaining investment value on such business in each case, particularly where motors of old design are involved. In frequent cases a new motor of high efficiency is greatly preferable from the investment angle, even at a higher immediate cost to the customer. This is only one instance illustrating the motor specialist's numberless opportunities to consider his customer's best interests. It is reasonable to assume that through the next several years the tendency will be marked toward the retirement from service of obsolete, inefficient motors; and re-winding shops are already established in sufficient number to take care of the remaining legitimate re-wind business.

The opportunity is great for the "new-era" motor specialist. The industrial public is demanding the kind of service which he alone can offer. The manufacturers welcome his advent. Perhaps the most important qualification for *potential* motor specialists is the one in easy reach—merely that they awaken to the light of a new situation in the motor business. Anyone with a grain of merchandising sense can *trade* in motors, but it takes a motor specialist to keep them running.



## A Survey of

# Inventory Taking Methods

**The Ideal Method is Efficient and Does Not Require Closing Up Shop**

THE "frantic" method of taking the annual inventory is fast disappearing from the electrical industry, according to a survey which has just been conducted by THE ELECTRICIST in a wide cross-section of all electrical contractors. The old system was to shut down the shop on December 31 or on January 1 and dismiss the girls and journeymen. Then the head of the company and an assistant who knew something about stock and prices would go from shelf to shelf and from bin to bin counting the items and listing them on a sheet of paper, with an estimated price. This usually took all day New Year's Day and sometimes half the night and at the end everyone was so tired that some items were forgotten, others were listed wrong, and the physical inventory was a defeat for the owner and for good system.

Today, according to the survey, about two-thirds of the contracting shops in the country follow a calm, business-like system, in which the journeymen and helpers will do most of the counting in spare time during regular hours, while the bookkeeper will add the prices and make extensions during the first two or three weeks of January, as opportunity permits, the physical inventory being completed in a few hours on the afternoon of December 31. Of the 125 contractors on whose reports this survey is based, 82 take inventory in their spare time, while 43 close down the shop for the counting, usually on a Sunday between Christmas and the end of the year or New Year's Day.

### When to Take Inventory

Of all the contractors in the survey, 20 per cent take the inventory on New Year's Day, 60 per cent in the period just after Christmas, and the other 20 per cent on odd days whenever their fiscal year ends, such as February 1, August 31, October 31, November 30, and so on. Eight of the 125 take inventory twice a year, usually on January 1 and July 1. One who does this twice a year stated that he takes a com-

### Why Take Inventory?

1. Shows how much stock is on hand at the end of the year, from which you can figure your profit, your overhead, and make out the financial statement.
2. Helps in making tax statement.
3. Points out slow-moving articles on which the sales force can concentrate.
4. Points out slow-turnover items which should be abandoned.
5. Indicates loss of goods by theft or by excessive breakage.

plete inventory at the end of the year and a supplementary check inventory six months later on the fast moving items. One contractor takes inventory three times a year, and 19 out of the 125 have a perpetual inventory system which is checked frequently by a more or less complete physical inventory.

The survey disclosed a great difference in time required to take inventory, and this is natural because of the great differences in kind and number of items carried in different shops, and in the methods of taking inventory. About one-third of the shops are able to do the job in one day, and this includes most of those who close up and try to do the whole thing in one continuous session. Twenty-nine of the contractors reported that they take inventory in two days; 19 take three or four days; 18 require a week and eight spread the work over two weeks. These figures are open to many interpretations and are interesting but not particularly useful. The ideal method of inventory taking disclosed by the survey might easily spread out over two weeks for the counting, because it is only done by one or two men and only in spare time.

A few shops hire extra help to assist with the taking of the inventory, but about 90 per cent use their own employees. Quite a number of shops call in their salesmen, journeymen, apprentices, and helpers to do the major part

of the work, while in some cases the executives do most of it, with assistants to do the counting as they do the recording and pricing.

### One Method

Among the methods of taking inventory reported by the contractors in the survey there are two outstanding successful plans. Plan No. 1, in use in the majority of cases, is as follows:

Immediately after December 25, there is a natural slack period, one where journeymen or helpers are assigned to clean up the stock. They put bins of each kind together, sort out the bins to see that all bolts, screws, plugs, etc., of a kind are together and that obsolete articles without value are cleaned out. All wire is put in its proper place, conduit and odd ends of pipe piled neatly where it belongs, and the shop shelves entirely cleaned up. This work can naturally be done in spare time, whenever opportunity presents itself, and if there is a large variety of stock it may be begun as early as December 1.

### Counting

As soon as the cleaning and sorting is complete, the men count the articles in each bin and write the name of the article, the quantity and the date counted on a 5 in. by 3 in. card, or any other convenient size card, as shown in Fig. 2. Space is left on the card for the marking of quantities added and subtracted, with the date of addition or removal, and as each bin is counted the card is laid on top or tacked on the shelf. Thereafter, when stock is put in the bin or removed it is recorded on the card so that temporarily a perpetual inventory is kept. On the afternoon of December 31 someone goes through the shop, removing all the cards and they are brought to the bookkeeper for the recording of the inventory. That completes the physical inventory and thereafter it is only necessary to balance the record on each card, arrange the cards in alphabetical order by products, or in groups by departments, and the book-





tals. G. Fred Laube, president of the corporation, reports: "It is a fine thing to have the different departments take inventory of their own stock, because in that way they will discover the slow moving stock. Each department checks the slow moving items and uses it as a guide for the rest of the year to dispose of that stock."

Another contractor who departmentalizes his inventory records the stock under the headings: Motor Repair Department, Used Motor Department, New Motor Sales Department, and Wiring Department.

Some contractors who do nothing but contracting buy material only for each job and do not try to keep any stock on hand. When a job is finished the left overs are sold in a lump sum. In this case it is not necessary to take inventory, as the value of the building, furniture and office supplies is the same as the previous year, plus purchase, less depreciation.

#### Perpetual Inventory

The question of a perpetual inventory is much debated among contractors. Several who answered the survey stated that they had tried a perpetual inventory without success; others said they had installed the system with the greatest success and were very much pleased with it. A careful examination of the answers to this question indicate that a perpetual inventory is valuable in the following cases: 1. Large contracting companies; 2. Contractor-dealers who have a lot of large appliances and fixtures but not many small items; 3. Motor shops where individual motors can be listed by serial numbers. It is not very successful when there is insufficient help to take care of the system or where there are a large number of items with a rapid turnover of the articles.

A large number of contractors keep a perpetual inventory for some of their stock, such as appliances, motors, and fixtures, but make no attempt to keep a record of other items in their shops except in the annual physical inventory. Here are a few of the varied comments on the subject of perpetual inventory:

"I keep a perpetual inventory on a few items that have serial numbers."

"Had a perpetual inventory for a time and found it was too expensive to maintain."

"On tools and equipment only."

"Only on lighting fixtures which are listed by catalog numbers."

"I keep a perpetual inventory but it

is always short at the end of the year."

"Had a perpetual inventory for two years but found it very unsatisfactory."

"We find our perpetual inventory system very satisfactory."

The most striking comment, which illustrates the reason for keeping a careful, and possibly a perpetual, inventory on merchandise is that of W. C. Krauth, of the Krauth Electric Company, Louisville, which specializes in power apparatus for industrial plants. Mr. Krauth started his perpetual inventory in 1926 and about it he states: "The results that we have received during this year from our perpetual inventory have given us the necessary information that will result in lowering our inventory, because it is surprising to know how much merchandise is purchased that has a turn over of one time or less per year. Our line of business is such that we must carry quite a lot of slow selling standard equipment, such as slow speed motors; speed reducing units, special magnetic switches and other standard slow selling items. These items are purchased in very small quantities and the purchase is noted in our perpetual inventory. If we find that any particular item does not turn over one time in two

years, we then discontinue stocking this item."

#### Starting a Perpetual Inventory

Mr. Krauth began his perpetual inventory on January 1, 1926, taking as his starting figures the records obtained from his annual physical inventory of that date. The records are kept in two loose leaf binders, one of which contains power apparatus, while the other has insulating material and repair parts and materials. Special apparatus is not inventoried as it is purchased for a particular job and charged direct to the job. The items in the inventory are priced at net cost including freight and a separate page is kept for each item. From the records one can see at a glance how much of any one item was purchased during the year, the average cost, and the turn over, and from this information Mr. Krauth is able to decide whether or not the item should be carried in stock regularly, or abandoned.

Another contractor keeps a perpetual inventory which is constantly checked with the actual stock. Every item of stock is given a stock number and recorded on cards, one card for each item.

(Continued on page 25)

## Perpetual Inventory for Motor Shop

A MOTOR repair shop can very easily keep a perpetual inventory if it is not made too elaborate, according to W. H. H. Hobart, secretary of Naylor and Newton, New York motor repair shop. "Too much red tape," Mr. Hobart says, "will ruin a business, but a very simple perpetual inventory system such as we have is very useful in keeping track of our expenses for material and our stock on hand."

The inventory is kept in two card-file drawers which hold standard 3 in. by 5 in. white index cards, which are ruled by hand, as shown. The cards are not printed. When a new item is added, the bookkeeper makes out a new card and files it in its proper alphabetical

position. As material comes in it is entered on its card, and the price paid for it is entered in the third column when the invoices arrive. Whenever an employee takes material to a job, he fills out a material requisition card which goes to the bookkeeper and at the end of the week all material removed from stock is entered on the cards.

By adding together all the entries on the left side of the card and subtracting all the entries on the right, the amount of any material on hand at any time, or its value can be learned. From time to time the cards are checked with the stock to prevent errors.

The total amount of purchases for the week, in money, is entered in the inventory book, in one column; and in the opposite column the total amount of withdrawals from stock. The two columns are frequently balanced and the total value of the stock on hand is obtained. At the end of the year, when it is desired to make a final inventory, the card file is checked with the stock, and the bookkeeper in a few hours has the total value of the stock on hand, from either the cards or the book.

Index #14 Magnet					
Oct. 6, 1927	13 lbs.	21.84	Oct. 31	14 lbs.	23.52
Nov. 3	10 lbs.	16.80			

Index Card for Perpetual Inventory

# Jobbers Can Help The Electragists\*

## Jobbers Have Certain Duties Toward Electragists If the Industry Is to Get On a Sound Basis

By CLYDE L. CHAMBLIN,  
President, Association of Electragists, International

**W**HAT can the jobbers do to assist the Electragists with their problems seems to be the eternal question, for it has been the subject of discussion ever since I first became connected with association work some fourteen years ago. The name "contractor-dealer" was then used in place of "electragist," but the problem remains unchanged.

As you know, the Association of Electragists, International is the contractor-dealer branch of the electrical industry, composed of some 2,300 members, most of whom are endeavoring to carry out the principles for which it stands, and which merits the support of not only the contractor-dealers, but of all the industry. I wonder how many of you jobbers are sufficiently familiar with the principles of the Association of Electragists, International to sell it to your customers who are non-members. One of the planks in our trade policy is that "distribution be from the manufacturer, through jobber, through dealer to the public."

### The Last Link in Distribution

If it be true, as we have been told by you for years, that the contractor-dealer is the real backbone of your business, why should he not be the object of your greatest study as an outlet for your goods? The whole industry is fully aware, and openly advertises the fact, that the contractor-dealer is the last link in the chain of distribution, and yet out of 30,000 contractor-dealers the Association numbers 2,300. In the face of these facts, for other organized branches of the industry to ignore the sales possibilities that are being either totally or partially lost to them through lack of contact and lack of organized educational development, seems to me to be extremely shortsighted, to say the least. You jobbers are in no position to high hat the contractor, or to blame the contractor-dealer organizations for not ac-

### JOBBER CAN HELP

**First: By establishing sound business policies and then sticking to them in spite of hell and high water.**

**Second: By finding out what the A. E. I. stands for and then helping increase its membership among non-member customers.**

**Third: By taking the lead in cementing a closer and more friendly relationship with the A. E. I.**

complishing more in the way of education in its branch. Who has had the most to do toward making it possible for a large part of these 30,000 contractors to be struggling for an existence? Contractors' associations, or the A. E. I.? No indeed; you know this responsibility must be laid at the door of the jobbers of the country to a very large degree.

The industry has for years pitied, cursed, and in spasmodic attempts, endeavored to cooperate with the contractor-dealer, but it has been done in most cases with the same spirit one would drop a dime in a blind man's hat. It takes just as much brain to run a successful contracting business as any other branch, and I am being conservative when I say this. The average contractor puts in longer hours, and has to have a working knowledge of more subjects than department managers of large corporations. Perhaps this accounts for the apparent lack of interest shown in cooperative work. They simply have not the time.

How much does any successful contractor owe his success to the other branches of the industry, I wonder? This may sound like a harsh question, but ask yourselves the question as to what you have done that has actually put dollars in the pocket of any successful contractor you know. Being good fellows, attending conventions, keeping the results of policy meetings

a secret from the rest of your organization so that they are not put into working effect do not make successful contractor customers.

And then, the blessing, or curse, of credit. I have sat in numberless meetings with jobbers, and never have I heard one of them admit, but on the other hand absolutely deny, that he ever extended credit without the most careful investigation. All are absolutely pure. In the face of this, gentlemen, look at the record, which is more eloquent than words. Are you kidding yourselves, or trying to kid us? If so, let me tell you that you are kidding nobody but yourselves. The old, hackneyed expression, "If we don't extend credit, the other fellow will," is as unsound as for a contractor to say, "I had to take the job at cost because the Whosis Electric Company were on the job." When manufacturers and jobbers are using the same identical tactics as the contractors to get business, who are they that they should tell the contractor how to run a successful business?

### Cutting Prices

Will business confidence be built up or stabilized when the large manufacturer deliberately cuts way below his cost to get a job away from his competitor, and then sneers at some contractor who ignorantly omits overhead in estimating his job? Is the ultimate result from a competitive standpoint any different?

But now that I have spit in the bull dog's face, as my worthy predecessor, Joe Fowler, would say, let's try to bring something constructive out of this.

The contractor-dealer branch is admittedly the most poorly organized branch of the industry, although it is the neck of the bottle, and what I have been trying to bring out is, how can the other branches help out the situation unless they are alive to their own responsibilities first? The officers of the A. E. I. are bending their very best

\*Address before the Pacific Division, Electrical Supply Jobbers Association, Del Monte, Calif., October 20, 1927.



efforts to widen the neck of the bottle, but when we are faced with changing and conflicting policies, and just as unsound and unethical business methods as are being practiced by our own branch, to whom can we go for assistance? Remember, gentlemen, a policy is a policy only so long as it is maintained or is changed for progressive reasons alone. Consistent, unchanging policies are needed in all branches of the industry. Every branch needs men, who as policy makers, are big enough to take into consideration when forming their policies not only their own, or their firm's point of view, but its relationship to its competitor, customer and the public. Then when the best possible plan has been devised with all of these elements considered stick to it through thick and thin.

To be sure, we have a very much better situation in this particular section of the country than exists in most sections, but this is no time to pat ourselves on the back, for let me issue a word of warning right here. I fear we are beginning to coast along on the momentum of former years of effort. According to the laws of gravitation, when the impelling force is removed, the moving body stops or runs down hill.

#### A Selling Job

We are all engaged in a selling job. Our chief interest should be our customer and prospective customer to be successful. The electragist is your customer, and as such should be of vital concern to you. This does not mean that you executives can delegate to your salesmen the handling of industry problems or their execution. In my humble opinion there is no place for an executive of a jobbing house to graduate to out of inter-industry activity, except the pension roll. Whenever you get tired of this type of work you are tired of bothering with your customer, and therefore are losing sight of the purpose of your organization.

In other words, there is no executive work more important to your individual concerns than customer relationship. The industry throughout the country is at last beginning to realize its responsibility for the contractor-dealer. No better evidence could be asked than was given at the recent St. Louis convention of the Association of Electragists, International. Addresses by the President of the National Elec-



Clyde L. Chamblin  
President, Association of Electragists, International

tric Light Association, Vice President National Electric Manufacturers' Association, and chairman of the Electric Supply Jobbers Association showed a studied effort to effect a closer understanding and a more helpful relationship with the contractor-dealer. This indicates the dawn of a new day, for in the past the other groups to a large extent have been in the habit of shrugging their shoulders at the troubles of the contractors, feeling that these were matters which the contractors should settle for themselves.

What, then, can the jobbers do to assist the electragists with their problems?

First. Establish sound business policies and sound association policies and then stick to them in spite of hell and high water. You should be an example to us of proper business conduct.

Second. Make it your business to know what the Association of Electragists, International stands for, and then dedicate your organizations to the furtherance of its membership to your non-member customers. You are making more customers by so doing.

Third. You represent the constructive, thinking jobbers of the country. That is the reason you are here together, studying the problems of your business.

The A. E. I. represents the constructive, thinking contractors of the country. We are your customers. You are our principal industry contact. You should take the lead in cementing a closer and more friendly relationship with our membership. Customer relationship is vital to your success.

And so we might go on enumerating ways you can help the electragists with their problems, but after all you know them as well as we do. We can draw constitutions, by-laws, and rules, but in the final accounting they mean nothing unless the right spirit and intent are back of it all. America is great, not because of its constitution, wonderful as it is, but because of the great American spirit and loyalty back of it. Its spirit of fair play and sportsmanship makes it the leader among nations.

#### Taking Inventory

(Continued from page 23)

When a salesman or other employee takes out an article or sells it, a voucher is sent to the stock clerk, with the stock number. The "outgoing" item is entered on the proper card. When stock is added, the addition is entered. By adding the purchases and deducting the sales the balance of any one item or of the entire value of the stock can be obtained at any time. Should any large difference appear between the value of the stock in the bookkeepers' record and that showing on the perpetual inventory record an immediate check is made and the trouble quickly located. The error may be in the extensions or totaling; more often it is because some item has not been properly charged; possibly it is because the merchandise sold was not charged to the customer. Errors are infrequent, but they are quickly brought to light under this system.

Another contractor keeps a perpetual inventory on a card index, but does not try to check with the actual inventory. When the physical inventory is taken the proper balance of the quantity of each item on hand is put on the cards and if there is any great variation an investigation is made.

What might be called a perpetual semi-inventory is kept by one contractor, who keeps an itemized record of purchases but does not enter the withdrawals. Each of 85 per cent of the items in stock is kept on one page of a loose leaf book. On these sheets a record is kept of the purchases and the cost. The book is used when ordering material as it shows what has been paid in the past, what quantities are being purchased, and from whom they have been bought. Once a month a physical inventory is made of the active items; and once a year a complete inventory is taken.

# A Way to Sell More Fixtures by Mail

## A Well Planned Campaign of Letters and Advertisements Will Bring You New Customers for Re-Fixturing and Re-Wiring Jobs

**A**N AGGRESSIVE selling campaign should include a series of well-written sales letters, to be mailed to a carefully selected list of good prospects, at the same time that a series of newspaper advertisements is being run in the local newspapers; both forms of promotion should tie-up with personal selling within the store and within the home of prospects who indicate interest by making inquiry as a result of the mail and newspaper advertising. That is the idea back of the tied-together re-fixturing sales promotion campaign which the Artistic Lighting Equipment Association has prepared for its dealers,

and which is now under way in various parts of the country.

A series of six two-column newspaper advertisements has been prepared, which are reproduced here, reduced in size. In their original form these advertisements took 4 in. of space in each column, or a total of 8 in. per insertion. Some dealers modify the advertisements to suit the space they wish to use, keeping the copy as given here. This enables them to use cuts of lighting fixtures on sale in their stores, which they are featuring, instead of the standard type fixtures used in the original advertisements. The copy of the adver-

tisements strikes the keynote that old fixtures are jarring and new ones can be installed without inconvenience at small cost. "The equipment for your dining room," says one advertisement, "will cost less than a new table. For your hall and living room less than an ordinary rug."

The layouts strive to attract attention by an unusual border at top and bottom, which does not run straight across the two columns, but jogs in the center. It is intended that these advertisements run daily for six days and be repeated in the same sequence every week for six weeks.

### Letter No. 1

Dear Madam:

Many home owners and housewives have never changed their lighting equipment because they believe it is a difficult thing to do. Any of the lighting fixtures in your home can be easily and quickly replaced without dirt and muss and at a moderate cost.

Lighting fixtures are the gems that set off your rooms. You change your chairs, draperies, rugs and other furnishings. Why not your lighting equipment?

Lighting equipment of modern design is a sound investment and adds to the beauty and value of your home.

Remember also that you can retain your old fixtures so that if you move you can take your new ones with you, putting the old ones back in their place.

A card will bring our representative to discuss this with you, or should you call at our showrooms we will be glad to show you the latest designs and give you an estimate. This does not obligate you in any way.

Yours very truly,

### Letter No. 2

Dear Madam:

Add this new beauty to your home. Do you consider new lighting equipment for your home an expensive detail? This is a mistaken idea.

The price is moderate, they can be easily and quickly installed without dirt or muss, and the old ones replaced if you should move. It is a simple, clean job. Why not make your home more attractive and livable? Lighting fixtures are the gems that set off your room.

A card will bring our representative to discuss this with you, or should you call at our showrooms we will be glad to show you the latest designs and give you an estimate. This does not obligate you in any way.

Yours very truly,

### Letter No. 3

Dear Madam:

Are you letting this one feature spoil your home? Why consider your lighting equipment as permanent as your walls? It may strike the one discordant note in your home.

Why should you keep old fixtures when modern, artistic lighting equipment will bring new beauty to every room in your home? You can equip your dining room for less than the price of a table; your hall and living room for less than the price of an ordinary rug. A lantern or two adds personality and friendliness to the entrance or the hallway of your home—for less than the cost of two porch chairs. Such equipment is quickly and easily installed.

A card will bring our representative to discuss this with you—or better still, call at our showrooms where we will be glad to show you the latest designs and give you an estimate. This does not obligate you in any way.

Yours very truly,

### Letter No. 4

Dear Madam:

A small change that will mean a big improvement. Do you take the lighting equipment in your home as a matter of course? If it is more than a few years old it is undoubtedly more useful than ornamental.

Artistic equipment of modern design is moderately priced, easily installed without dirt or muss—and what a change it will make in the comfort, beauty and value of your home. Should you move the old ones can be easily replaced, and the new ones taken with you.

A card will bring our representative to discuss this with you—or better still, call at our showroom where we will be glad to show you the latest designs and give you an estimate. This does not obligate you in any way.

Yours very truly,

### Letter No. 5

Dear Madam:

Your home deserves this new artistic touch. Why neglect the lighting equipment in your home? Decorators will tell you that it is one of the most important factors in the artistic effect of any room. Your home can never look its best with old fixtures that strike a jarring note in its decorative scheme.

Whether you rent or own your home you can install modern, artistic and decorative lighting equipment. These fixtures can be taken down and the old ones replaced at any time, at a small cost, and without any inconvenience.

A card will bring our representative to talk this matter over with you. Better still, call at our showroom where we will be glad to show you the latest designs and give you an estimate. This does not obligate you in any way.

Yours very truly,

### Letter No. 6

Dear Madam:

Is your lighting equipment out of step? You redecorate and repaper your home. You buy new furniture, rugs and curtains. Why keep old lighting fixtures that are relics of gas-lighting days?

A chandelier and four wall brackets will complete the decorative effect of your dining room. They will cost less than a new table. Artistic lighting equipment for your hall and living room can be installed for less than the price of an ordinary rug. A lantern or two add friendliness and personality to the entrance of your home.

This is a job that can be quickly and easily done, and whether you rent or own your home the new lighting fixtures can be quickly and easily installed. The old ones can be put back in place should you move.

A card will bring our representative.

Yours very truly,



## Do "fixtures" still light your home?



DOES the lighting equipment in your home remind you of gas fixtures? If it's more than a few years old, it probably does. It spoils the effect of your decorative scheme. Why not increase the comfort and beauty of your home with modern artistic lighting equipment?

*This advertisement prepared by the Artistic Lighting Equipment Association in promotion of its nation-wide campaign for better lighting equipment in the home.*

The lighting equipment in any or all of the rooms in your home can be easily and quickly replaced at a moderate cost, and without any dirt or mess. Select it at your dealer's. It will be a sound and permanent investment, and add to the beauty and the value of your home. See the concern below for an estimate and designs.

## Add this new beauty to your home



Do you consider new lighting equipment for your home an expensive detail? A mistaken idea!

The price is moderate, they can be easily installed, and the old ones

replaced if you happen to move. It is a simple, clean job. Make your home more attractive and livable. The gems that set off your rooms—Artistic Lighting Equipment. Ask the concern below for an estimate and designs.

*This advertisement prepared by the Artistic Lighting Equipment Association in promotion of its nation-wide campaign for better lighting equipment in the home.*

## Are you letting this one feature spoil your home?



WHY consider your lighting equipment as permanent as your walls? It may strike the only discordant note in your home. Why keep old fixtures, when modern artistic lighting equipment will bring new beauty to every room?

You can equip your dining-room for less than the price of a table. Your hall and living-room for less than an ordinary rug. A lantern or two add personality and friendliness to the entrance of your home. For the price of two porch chairs. See the concern below and select this equipment for your home.

*This advertisement prepared by the Artistic Lighting Equipment Association in promotion of its nation-wide campaign for better lighting equipment in the home.*

At the same time, the campaign of letters is to be mailed by the dealer, one letter a week, to a carefully selected group of prospects. A prospect is anyone within the buying radius of the store who has the money to buy the equipment intended to be sold and who might be induced to buy it. The greatest care in selecting the list of prospects is well worth while; people who are living in new houses, with entirely new fixtures, are not prospects for re-fixturing and should not get re-fixturing letters. Renters are not prospects for re-wiring jobs, but they can be sold new lighting fixtures on the argument that they can store the old fixtures until they move out and then replace the old ones, taking the new fixtures with them to the new home. People who live in houses are prospects for exterior equipment, but people in apartments (except owners of apartments) are not prospects for exterior fixtures.

If the list is large the dealer has the letters multigraphed and the name and address of the prospects are filled in, and he personally signs each letter. The best results, according to G. P. Rogers, secretary-manager of the A. L. E. A., are obtained if the letter is typewritten and a smaller list of specially selected names is used.

With each letter a government

## Instructions

## Six-Week Re-fixturing Campaign

1—First select your mailing list very carefully, taking the best homes in the district you want to cover.

2—Then begin by mailing out letter No. 1 in the series of six letters on re-fixturing and replacement. One of these letters should go out each week.

If your list is large, you undoubtedly will have the letters mimeographed with name and address and salutation filled in at the top. Each letter should be hand signed. It is recommended, however, for best results to have the letter typewritten and perhaps cover a smaller list.

3—During the six weeks that these letters are going out the dealer should be running the six newspaper advertisements that tie up with this direct-mail appeal, changing the advertisements each day; that is, running through the entire six advertisements and then repeating. Select your lists carefully. Follow through on your advertising. Don't start and then skip a week.

4—During the time you are running your re-fixturing campaign you should be sending out to those prospects who are preparing to build new homes letters directed to this type of prospect.

stamped post card is enclosed which reads: "We are interested in lighting equipment of the latest design to replace our old fixtures. Please send your representative to discuss the matter with us. Signed ———." The postcards are addressed to the dealer and a record is kept of the number of inquiries obtained from each letter and from each list of prospects.

With the letters to owners of apartment houses and homes which could easily have outdoor fixtures, the dealer can mail the booklet on outdoor lighting equipment and lanterns which has been published by the Artistic Lighting Equipment Association for distribution to architects, builders, fixture dealers and home owners on request. The origin and development of the lantern are described and the booklet is illustrated with examples of the artistic decorative possibilities of exterior lighting.

The complete campaign, aggressively followed up by personal calls upon all the prospects who make inquiry, produces good results for the dealer, according to Mr. Rogers. As an example of what can be done he quotes one dealer who wrote: "I know that the dealers who operate fixture studios will also meet with the same success that we have if they put to work the advertising matter that you furnish."

## A small change that means a big improvement



Do you take your lighting equipment as a matter-of-course? If it's more than a few years old it's more useful than ornamental. Modern artistic equipment is moderately priced and easily installed. What a change it will make in

the comfort, beauty and value of your home!

The equipment for your dining-room will cost less than a new table. For your hall and living-room, less than an ordinary rug. See the concern below and select artistic and decorative lighting equipment for your home.

*This advertisement prepared by the Artistic Lighting Equipment Association in promotion of its nation-wide campaign for better lighting equipment in the home.*

## Your home deserves this new artistic touch



Why neglect the lighting equipment in your home? Decorators will tell you that it's one of the most important factors in the artistic effect of any room. Your home can never look its best with old fixtures

that strike a jarring note in its decorative scheme.

Whether you rent or own your home, you can install artistic and decorative lighting equipment. These fixtures can be taken down and the old ones replaced any time at a small cost without inconvenience.

*This advertisement prepared by the Artistic Lighting Equipment Association in promotion of its nation-wide campaign for better lighting equipment in the home.*

## Is your lighting equipment out-of-step?



You redecorate and repaper your home. You buy new furniture, rugs and curtains. Why keep old lighting fixtures that are relics of gas-lighting days?

A chandelier and four wall brackets will complete the decorative effect of your dining-room. They will cost less than a new

table. Artistic lighting equipment for your hall and living-room can be installed for less than the price of an ordinary rug. A lantern or two add friendliness and personality to the entrance of your home. For the price of two porch chairs. See the concern below and select the equipment for your home.

*This advertisement prepared by the Artistic Lighting Equipment Association in promotion of its nation-wide campaign for better lighting equipment in the home.*

# Estimating Methods---VI

## Labor on Large Wire Averages Wiring for Motors

## Short Calculation Methods Conduit Cost Records Records for Cable

By ARTHUR L. ABBOTT

Technical Director, Association of Electragists, International

AS FURTHER illustrating the use of Table 6 in the November issue for the calculation of the labor on large wire Figs. 1 and 2 are reproduced from a previous installment.

In Fig. 1 there is one run of 2 in. conduit from a distribution center in the basement to a cabinet on the fifth floor. It is found that this run requires 102 ft. of conduit. The estimator will have a general idea of the size of the two cabinets and the arrangement of the panelboards, and so can determine the approximate length of wire which will be needed in each cabinet. We will assume 1 ft. in the fifth floor cabinet and

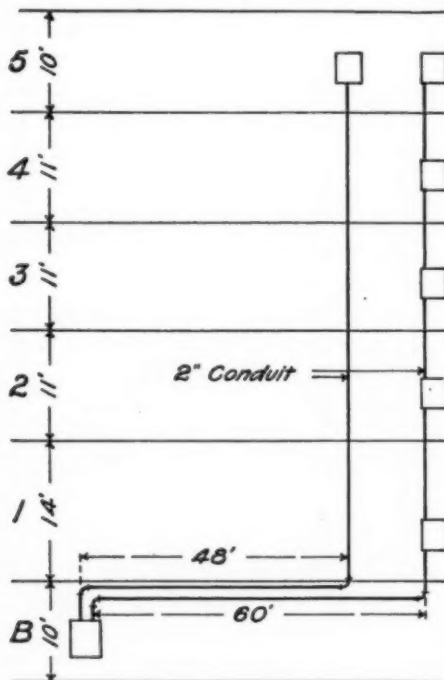


Fig. 1

3 ft. in the basement cabinet as fair allowances. The conduit is to contain three No. 2/0 wires. The length of one conductor is then 102 ft. + 1 ft. + 3 ft. = 106 ft. and the total length of wire is 106 ft.  $\times$  3 = 318 ft.

The second run also requires 102 ft. of conduit containing three No. 2/0

wires, but in this case the feeder passes through four cabinets, each of which is 3 ft. high, requiring an additional length per conductor of  $4 \times 3$  ft. = 12 ft. The length of one conductor is then 102 ft. + 1 ft. + 3 ft. + 12 ft. = 118 ft. and the total length of wire for the run is 118 ft.  $\times$  3 = 354 ft. The labor calculation is as follows:

The total length of wire for the two runs is 318 ft. + 354 ft. = 672 ft. and the average length for the two runs is  $672/2 = 336$  ft. In Table 6 we find for No. 2/0, 27 hr. per 1,000 ft. for a 300 ft. run and 26 hr. per 1,000 ft. for a 400 ft. run. The difference being slight, and 336 ft. being nearer to 300 ft. we use the time for the 300 ft. run and the estimated labor is  $.672 \times 27$  hr. = 18.14 hr.

It is probable that in this particular case there would be quite a saving in labor because the two runs are to be pulled in from two cabinets located on the same floor and will both be pulled to one cabinet in the basement. After the reel has been hoisted to the fifth floor for the first run it need not be moved far, possibly not at all, for the second run; no time need be lost in shifting the men to another location and if block and tackle is rigged for pulling one run it can be used for the other without change. Thus the example brings out very clearly the fact stated last month that no practical method can be devised for estimating the labor on large wire which will take into account all the variable conditions.

Referring to Fig. 2 the total length of conduit here is 135 ft. This is to contain three No. 4 wires. Making allowance for the necessary lengths in the cabinets and pull-box the length of one wire is 142 ft. and the total wire length is 426 ft. Table 6 gives 13 hr. per 1,000 ft. for runs 400 ft. to 600 ft. long. The estimated labor is therefore  $.426 \times 13$  hr. = 5.54 hr.

It is interesting to note the results obtained with Table 6 by using the labor unit for the average length of run as compared with a separate calculation of each run. Assume that on one job there are three runs of 250,000 c.m., the total lengths being 180 ft., 450 ft. and 870 ft. Calculating each run by itself we have:

180 ft. at 50 hr. per 1,000 ft. . . 9.00 hr.  
450 ft. at 37 hr. per 1,000 ft. . . 16.65  
870 ft. at 34 hr. per 1,000 ft. . . 29.58

Total . . . . . 55.23

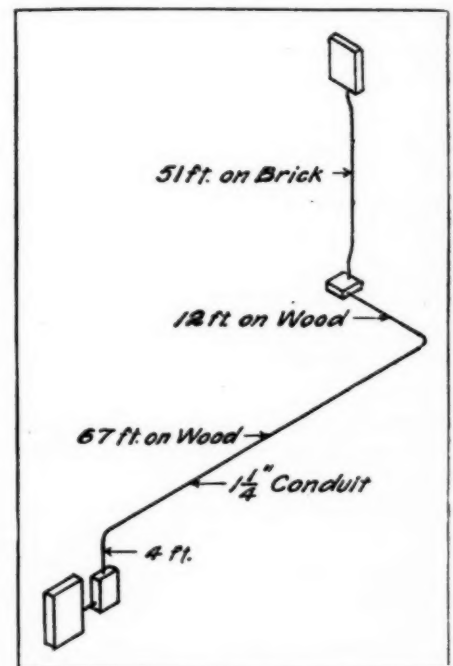


Fig. 2

The total length is 1,500 ft. and the average length per run is 500 ft. for which the labor unit would be 36 hr. per 1,000 ft. and the estimated labor is 1,500 ft. at 36 hr. per 1,000 ft.—54 hr.

The total estimated labor is practically the same in either case.

As an example of the use of the conduit and wire labor data as applied to motor wiring a partial estimate of a



small industrial installation is shown.

Fig. 3 is a floor plan showing the location of six motors and the layout of wiring in a space 40 ft.  $\times$  48 ft. Motors Nos. 1, 2 and 3 are equipped with starting compensators and disconnecting switches. The 5 h. p. motors have double-throw knife switches used as across-the-line starters. The floor and ceiling construction is wood and the walls are brick.

Assuming that the contractor is called in to give a price on the wiring, the first step is to measure the length and width of the space, preferably with a tape, and to lay out a floor plan to a scale of  $\frac{1}{4}$  in. = 1 ft. The only drafting equipment required is a common 2 ft. or 6 ft. rule and a lead pencil. The approximate locations of the motors and starters are then shown on the plan and the layout is completed by drawing in the conduit runs.

From this rough sketch the conduit lengths are scaled off and may be entered on the Feeder Schedule form as shown here if convenient, or a page in a pocket notebook will serve the purpose. The totals are found for each size of conduit and wire and these are

set down on the Pricing Sheet. A regular printed form ought to be used here because quite a number of additional items will appear in the complete estimate and the orderly, systematic method of using a standard form is always a

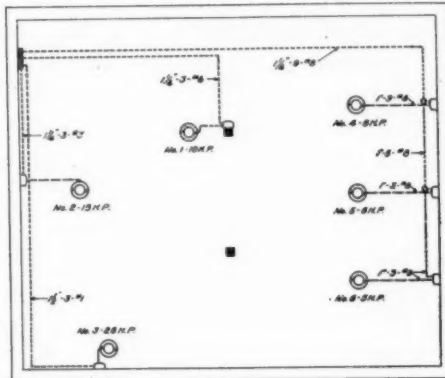


Fig. 3—Floor Plan

safeguard against errors and omissions.

After entering the conduit quantities on the pricing sheet a glance at the layout shows that there are 7 runs of 1-in. conduit, 5 runs of  $1\frac{1}{4}$ -in., and 2 runs of  $1\frac{1}{2}$ -in. The average lengths of the runs are therefore 10 ft., 28 ft. and 30 ft., respectively, and the corresponding labor units—hours per 100 ft.—are taken

from the table. If we wish to be very exact we must take into account the three nipples connecting from the disconnecting switches to the compensators, which requires the two items of four  $1\frac{1}{4}$ -in. terminals and two  $1\frac{1}{2}$ -in. terminals. The total labor is 57.90 hours.

To show the saving in the estimator's time by using the short method the calculation is also carried through by the regular or long method. It will readily be seen that it is quite difficult to determine from the plan the number of elbows, terminals, bends and pipe straps required, especially when it is remembered that in nearly all practical cases the plan would be only a rough sketch. Additional time is also required to enter the items on the pricing sheet and make the calculations. The totals obtained by the two methods will not always be identical as in this case, but will be nearly enough the same for all practical purposes.

Some question may arise as to the proper method of using the table of labor data for wire in the case of the No. 8 in this example. In general, there is a certain amount of time required in the operation of pulling wire for other

JOB Example - Small Industrial Plant									
ESTIMATED BY _____ DATE 11-15-27									
MOTOR NO.	H.P.	FROM	TO	SIZE	LENGTH	L.S.	TERMS.	WIRE	LENGTH
1	10			1 1/2"	50			3 #8	171
2	15			1 1/2"	30			3 #8	111
3	25			1 1/2"	59			3 #1	188
4	5			1 1/2"	56			9 #8	531
5	5			1"	16			5 #8	63
6	5			1"	9			5 #8	90
				1"	16			3 #8	63
				1"	25			3 #8	90
Totals				1 1/2"	48	48	48	#1	
1 1/2"	50	59	531	171	111	188			
1"	30		63						
1 1/4"	56		60						
25			63						
68	136	59	907	171	111	188			
ALLOW	4	5	1	23	9	9	2		
70	140	60	830	180	120	900			

JOB Example									
WORK Small Industrial Plant									
ESTIMATED BY _____ DATE 11-15-27									
PRICED BY _____ EXTENDED BY _____ CHECKED BY _____									
MATERIAL	QUANTITY	UNIT PRICE	PER	REQ.	EXTENSION	LABOR UNIT NO.	PER	EXTENSION	TOTAL
<b>SHORT METHOD</b>									
Average Run									
1" Conduit	10'	70'				23	6'	1380	
1 1/4" "	28'	140'				19	6'	2880	
1 1/2" "	30'	90'				21	6'	1260	
Nipples - 1 1/4" Terminals	4					40	ea.	160	
1 1/2" "	2					50	"	100	
									5790
<b>REGULAR METHOD</b>									
1" Conduit	70'					330	0'	231	
Ls	10					80	ea.	8	
Terminals	14					25	"	350	
Bends	5					20	"	1	
1 1/4" Conduit	140'					420	0'	294	
Ls	10					130	ea.	13	
Terminals	14					40	"	560	
Bends	5					50	"	250	
1 1/2" Conduit	60'					400	0'	240	
Ls	8					150	ea.	12	
Terminals	8					50	"	400	
Pipe Straps	44					240	0	106	
									2793
<b>WIRE</b>									
#8	830'					9		72	
#6	180'					12		96	
#3	180'					12		96	
#1	200'					28		224	
									1588

Feeder Schedule and Pricing Sheets Filled Out to Show Their Use

items beside the actual pulling; this time is chiefly the time for moving the wire and equipment to and from the locations where they are used and for placing the workmen. The No. 8 wire in this installation would very probably all be pulled in at the same time, practically as one operation, hence it is proper to consider that there is only one run of this size and we use the labor figure for a run of 830 ft., which is 8 hours per 1,000 ft.

The tabulated labor data is somewhat high for all the wire on such a job as this because all the work is confined to a small space, and presumably all the material and all the equipment is ready at hand in this room and very little time is lost by the workmen in selecting the materials and going to the location of the work. This is another illustration of the practical difficulty of compiling labor data which will fit any and all conditions. If it were important that the labor be figured very closely in this case the estimator would be justified in making a deduction of perhaps 20 percent from the total computed for the wire.

#### Conduit Cost Records

Any man who wishes to become thoroughly proficient in estimating must make some study of labor costs on actual installations. He will learn in this way better than he can possibly learn in any other way the limitations of tabulated labor data, the degree to which such data can take care of varying conditions on the job, the degree of accuracy of the data used, and most important of all the surprisingly great effect on labor costs of the methods used in managing the job.

Few if any of these most desirable results will be obtained unless the right methods are followed in keeping the labor records; in fact, it is hardly worth while to keep any special records at all unless this is done according to the methods which experience has proved to be the most effective.

The first and most important rule in keeping special labor records is to first adopt some definite data as a standard and to keep all records in such a way that they can be directly compared with this standard. The data published in this series are admirably adapted for use as a standard because it is so worked out as to fully account for all the labor involved in installing any given quantity

of material. Even though the estimator may prefer to use data in some other form for estimating it would be highly advisable for him to use the Electragist data as a standard in his cost record work. It is a very simple matter to translate this data into any other form to which the estimator may be wedded to by reason of his many years of experience in the use of his own methods.

Special time records on large conduit should in every case be records of complete runs. The most simple case is a record of one run of one size of pipe; such records may often be easily secured on either small or large jobs. A sketch should be made of the run showing the length of pipe and the number of elbows, terminals and bends. Special note should be taken (1) whether there is any elbow which forms a terminal, *i. e.* no nipple being coupled to the elbow to terminate the run, and (2) whether any elbows or pull-boxes are so located that they are connected by full lengths of pipe without nipples; either of these conditions will reduce the labor.

The total time in man-hours for installing the run of conduit should be recorded, this time should not include any labor on hangers or straps because this is not conduit labor. The time should be estimated, using the data in Table 1A (November issue). Then the actual time should be compared with the estimate by finding what percentage the actual time is of the estimated time. This percentage is a figure which has a permanent value; it can be referred to at any time and will always have a definite and clearly understood meaning.

#### Large Wire Records

A case which is not quite so simple as the above is that where a record is kept of the time required to install several conduits of two or more different sizes and the work is done in such a way that it is not possible to record separately the time on each size. In such a case the total time should be estimated and a percentage should be found by dividing the total actual time by the total estimated time, then this percentage should be recorded as applying to each size of conduit.

The operation of pulling in a run of large cable usually requires enough time so that it is not difficult to record the time on each run by itself, and this

is the method which should usually be followed. The total actual time should be compared with the estimated time and a percentage computed in the same way as explained above. For the reasons previously stated a considerable difference will often be found between the actual and estimated times.

#### Careful Estimating

In order to assist in the further study of this item of labor and the possible production of more refined methods of estimating this labor it is very desirable that a considerable number of records be kept separating the time into three parts, viz. (1) Fishing the conduit and drawing in the pull rope (2) pulling in the cable (3) all other work, including moving and blocking up the reel, rigging blocks and tackle or winch, cutting off the cable, attaching the cable to the pull rope, etc. A sketch should be made of the run, showing the approximate position of elbows, lengths of horizontal and vertical sections of the conduit run, and length of cable pulled through at the end of the conduit.

Whenever a record is kept on any operation, if the actual time is found to differ to any considerable extent from the standard or estimated time, we may look to any one of three possible causes of the difference: the standard may be incorrect, certain unusual conditions may have been encountered on the job, or the job management may have been exceptionally good or exceptionally poor. An effort should always be made to determine the reason for the variation from the standard. If the standard is at fault it should be corrected; if exceptional conditions are the reason an effort should be made to foresee these conditions on future work; if the management of the job caused either a gain or a loss the proper application of this experience on the next job is obvious. It is by the use of such methods that a contracting organization is kept continually on the up grade, always showing improvement in its efficiency in handling work.

#### Electrical Advisory Service

A free advisory service has been established by the Electrical League of Utah for its members, covering any sort of electrical problem, technical, merchandising, advertising or accounting.



# Market Development Through Better Retail Outlets

## Analysis of Approach to This Problem by Plumbing and Heating Industry in the Establishment of the National Trade Extension Bureau for Contractor Education

By LAURENCE W. DAVIS

General Manager, Association of Electragists, International

**M**ARKET development is the term for the programs common to almost every industry today. Usually market development concerns itself only with trying to create a public demand and pays little attention to the character of outlets which must satisfy this demand. Much is said about the desirability of responsible and efficient contractor service and of convenient attractive retail outlets, but responsibility for creating conditions assuring the public that they will receive the right kind of service when they go to buy is usually not considered a part of market development.

### The Fundamental Basis

Development of markets is wasted unless adequate and satisfactory provision is made to serve the public when the desire to buy has been stimulated. This is the fundamental basis upon which the plumbing and heating industries have built up their very successful market development work.

In 1919 those industries organized the National Trade Extension Bureau of the Plumbing and Heating Industries as a central organization, acting for the entire plumbing and heating industries as a unit, to stimulate trade development and their industries' promotional activities. In a little over eight years it has established itself as one of the outstanding trade organizations of our industries. Today the Bureau occupies two floors of a large office building in Evansville, Ind., with a headquarters staff of nearly forty people.

The management of the Bureau is under the jurisdiction of a board of twenty-four directors appointed by the associations or groups representing the several branches of the plumbing and heating industries—one man representing each of the separate groups of the manufacturers and wholesalers, six rep-

resenting the master plumbers and three representing the heating and piping contractors.

During the past several years the Bureau has averaged an annual expenditure around \$150,000 in carrying on its work, of which 87½ percent was subscribed by manufacturers and wholesalers, through contributing memberships, and 12½ percent received from master plumbers and heating contractors through their national associations. Its present budget for the coming year, however, amounts to \$500,000, with plans for greatly increasing most of its present forms of activities and to broaden still further their work along specific lines.

In a recent interview with William G. Bergner, Secretary of the National Trade Extension Bureau, at their headquarters in Evansville, Mr. Bergner said:

### Better Merchants

"When you say that the retail branches of our industries should become better merchants you have put your finger on one of our major difficulties. Everybody knows that our industries can manufacture enough products and can make those products available through the wholesalers to the contractors, but too many products stop right there and don't get into the consumer's hands.

"The purposes of the National Trade Extension Bureau are to develop business and sales efficiency among the retail distribution outlets and enable them to meet successfully competition of other industries for the public's purchasing dollar.

"The Trade Extension Bureau recognizes primarily the need for establishing better business methods and practices among master plumbers and heating contractors. Its services aid them in

modernizing their accounting methods, office, store and shop practices, and through the development of successful retail merchants and salesmen it increases the efficiency of retail distribution and creates greater and more profitable sales for our industries."

### The Program

With its increased budget of half a million dollars for the coming year the Trade Extension Bureau has classified its increased program under four general headings as follows:

1. Analyze the industries market.
2. Arouse the retail group to greater merchandising effort.
3. Advertise collectively to the consumer.
4. Take advantage of the efforts of existing organizations of similar interests.

To accomplish these four things the National Trade Extension Bureau proposes the following program:

1. The Bureau will make a careful analysis of the existing and potential markets for their industries' products. It will measure the buying power of the public in these markets. It will assemble all pertinent available facts about these markets.
2. The Bureau will intensify its efforts among the retail branches of their industries. It will give the retailers specific methods of selling and improving business and management practices. The Bureau will inspire the retailers to use these methods.
3. The plumbing and heating industries will launch a collective magazine advertising campaign to assert emphatically the value of their industries' products and the part they play in the theme of modern life.
4. The Bureau has worked with the

General Federation of Women's Clubs the past year. Tangible results warrant contact with other semi-civic organizations. The value of these contacts cannot be overestimated. They afford a receptive outlet for educational material.

The responsibility for developing the enlarged program and raising the funds for the National Trade Extension Bureau is in the hands of a committee of twelve outstanding leaders in their industries, which committee is known as a "Program and Budget Committee of the Plumbing and Heating Industry," with Russell G. Creviston as its secretary. In a recent address before a meeting of the Sanitary Plumbing and Heating League of Pennsylvania Mr. Creviston said:

"The Master Plumbers and Heating Contractors are the key men in our industries. Unless they respond to the efforts of the Bureau, unless they keep an open mind with regard to the Bureau's services our industries' promotional campaign will not be a success. It is not our desire to use the contracting bodies of our industries as clinical material. We do not want to use them for experimental purposes. On the contrary we offer them the Bureau's tried and tested remedies for their business difficulties.

"Quantity of retail outlets is not what is needed—efficient, aggressive outlets are the crying need, and the creation and maintenance of inefficient outlets unduly depresses and discourages legitimate and established contractors and

multiplies their problems at the expense of decreased profits and volume. Unwise credit extension by wholesalers subsidizing inefficient contractors can only have the effect of destroying confidence in the wholesaler and engendering dislikes and misunderstandings. Such a procedure handicaps the efficient channels of distribution and decreases instead of adds to business volume.

"It must be obvious that if public consciousness is directed toward our industries the retail outlets must reflect, in their business, the high standards and impressions we hope to create in the public mind. The attitude of the contractor toward the consumer should be one of helpfulness, and he should be actuated by a conscious motive to please. He need not, however, improve the ap-

## Promotion Activities of the Plumbers' Trade Bureau

### Monthly Service Bulletin

Each month a twenty-page Bulletin is published by the National Trade Extension Bureau and mailed to over forty thousand plumbers, heating contractors, manufacturers, wholesalers and their salesmen. The Bulletin contains suggestions, information and ideas on better bookkeeping, estimating and management methods, advertising and retail selling methods. It shows where sales possibilities are, and helps master plumbers and heating contractors to increase their sales volume along practical lines.

### Accounting

It is impossible to estimate the value of the services rendered in supplying master plumbers and heating contractors with proper accounting, estimating and cost finding information. Free consultation service on any accounting or financing problem is rendered. Complete, standardized accounting systems, contract, estimating and other necessary forms are supplied. The Bureau furnishes credit and collection bureau plans and collection letters. Plans and supplies for accounting classes and correspondence courses in accounting have been supplied in great quantity. This service has helped master plumbers and heating contractors to profitably operate their business.

### Store Planning

Drawn-to-scale blue prints are supplied, and individual service is given to master plumbers and heating contractors which will aid them to arrange their store displays, windows, offices and shops.

### Show Windows

Suggestions, ideas, information and material for effective window displays are illustrated and described in the Monthly Service Bulletin. Special designs for windows are supplied upon request.

### Advertising

Newspaper advertisements, sales letters, booklets, folders, sales plans, advertising budgets and various forms of advertising and selling aids are supplied to master plumbers and heating contractors.

### Statistics

The statistical service rendered by the Bureau furnishes information secured through surveys and studies covering a wide range of subjects such as: Building operations — completed, in progress and prospective—analysis of population, buying power, etc. These services make statistical data available that would be expensive to secure from any other source.

### Apprenticeship

Everyone in these industries is vitally

interested in proper installation. Practical instruction in the principles and fundamentals of plumbing and heating installation is given apprentices and journeymen, through text material supplied to trade schools and by correspondence instruction. This service provides a supply of skilled labor upon whom the proper installation of plumbing and heating equipment depends.

### Field Service

Field representatives of the Bureau address numerous conventions, associations of master plumbers and heating contractors, and civic bodies, in the interest of better business methods and public relations. These meetings are well attended and much good is accomplished. Individuals and shops are called on by the field men and personal service rendered to help them improve their business methods.

### Results Obtained

Those who have used Trade Extension Bureau methods have become better business men through the Accounting Service; better teamworkers through the Lecture Service; better salesmen, advertisers and merchants through the Sales-Help and Advertising Service; and better employes through the Apprenticeship Service. These services have resulted in increased sales volume and profits.



pearance of his place of business and serve the public at the expense of losing money in his business. We believe that every merchant, every man in business in fact, is entitled to a legitimate profit, and a great deal of the Trade Extension Bureau's efforts are exerted toward acquainting the contractor with the mechanism and methods of running his business so that a profit to him will be assured.

"First and foremost the contractor's business should be housed in fitting surroundings. If he hopes to establish himself in the public mind as a source of plumbing and heating equipment his place of business should unmistakably identify him with that calling. We envision a higher status for the Master Plumber and Heating Contractor, a status which places him on the par with his professional brethren, the architect

and the physician. It is for this reason that we place so much emphasis on the physical appearance of his business establishment.

"When we place emphasis on appearance we do not wish to minimize the efficient operation of his business, because we recognize, and I am sure you all do, that efficient operation spells the difference between success and failure. The fundamentals of effective operation demand a system of records, because without records business drifts aimlessly and measurement of progress and retrogression is impossible. After the importance of records comes aggressive selling methods. There are all too many contractors who hope that customers will seek them out. Such hopes seldom find realization. The consumers have been educated so that they wait for the business men to seek them out,

so that we in our industries, if we hope to attain success, must adopt selling methods comparable to those of other industries.

"Employee training, as advocated by the Bureau, is a necessity brought about by the importance of installing equipment. Equipment poorly installed not only creates dissatisfied customers, but may become, also, a public menace. The confidence of the public is too great a responsibility to be idly disregarded by anyone.

"Your local associations are but another evidence of the necessity for group effort as opposed to the ineffectiveness of individual, undirected effort. We want you to know that the Bureau stands ready to assist your associations in any of their projects, not only with counsel, but also in the actual production of the materials needed by them.

## Problems Involved in Using Circuit Wire for Grounding\*

By D. HAYES MURPHY

IT seems logical to assume that the total prosperity of our industry is measured by the safety, the economy, and the completeness with which we furnish electrical service to the public, and if this is true, how can we convince our engineers and our commercial and financial men that the best protection for their private interests, and the surest way to make the largest profits, is by guiding the electrical industry in constructive, progressive thinking and action immediately—I mean between tonight and the time the 1928 Code is printed?

Is there any engineer or commercial or financial man among us who is afraid to take his chances with any rules or any codes which are openly arrived at with all interests represented?

The vital necessity for *immediate* action is of course the crisis which has arisen as a culmination of years of discussion and arguments over the question of grounding.

Not being a technical man I feel perfectly safe in relating things which I have been told about the situation, especially since I have been told so

many different and conflicting stories.

Among these things I have been told that great savings in installation costs may be effected by using circuit wires for grounding. I have also been told that before deciding to use circuit wires for the grounding of your motors, for example, it would be well to give the subject most careful consideration, and that such questions as the following should be answered to the complete satisfaction of all:

1. Are such ground connections liable to be accidentally opened by wiremen, line men or maintenance men?
2. If the ground connection is open would there be danger of imposing full potential on apparatus frames through the live wires and their own windings?
3. Is there danger of reversal of polarity outside of the building?
4. Is there danger of reversal of polarity inside of the building?
5. If these dangers do exist, who will guarantee against accident—the power company, the building owner, the contractor, or the manufacturer?
6. Regardless of who is responsible or who is to blame, what will be the effect upon electrical manufacturing business if accidents increase due to

motor frames and the like becoming alive?

It seems obvious that a wiring system in which one of the circuit wires serves as the ground wire is cheaper to install than one having an extra wire for grounding, and if the above questions, and any others which may reasonably be raised, are satisfactorily answered, we should take the initiative in giving the public the benefit of this saving, and thereby expand our market.

Not one of us would under any circumstances produce or sell any electrical article which we did not consider safe for use, nor would we think of such a thing as balancing safety against cost, but regardless of any such convictions as these, it is well to keep in mind that the sale and use of electrical appliances depends upon safety, and nothing kills a sale like an accident.

Whatever the final solution may be, let us make every effort, and even temporary sacrifices if necessary, to the end that in Code matters the National Electric Manufacturers' Association may take a constructive stand that will have the united support of our membership and the respect of all other interests in the National Fire Protection Association, especially the electrical inspectors.

\*From a paper by D. Hayes Murphy, before the Apparatus Division, National Electrical Manufacturers' Association, October 24, 1927.

# Jobbers Recommend Ways to Reduce Costs

**M**ORE efficient handling of electrical merchandise by dealers as well as jobbers, through simplification of lines of conduit fittings and wiring devices by manufacturers, would reduce costs. That was the gist of the recommendations adopted by the members of the Electrical Supply Jobbers' Association at their semi-annual meeting in Detroit November 14-18.

## Household Motor Driven Devices

The committee viewed with much concern the decreasing number of jobbers handling household motor driven devices. It recommended for the serious consideration of the individual members that jobbers become buyers for the dealer and consumer, instead of being sellers for the manufacturer, and that instead of purchasing by brands, buying according to standards of quality which will meet the requirements of their trade. Such action, it was believed, should result in reductions in manufacturers' prices, which can be passed on to the consuming public, and that these lower prices will bring the benefits of household motor driven appliances within the reach of a large number who cannot now purchase them. Savings in the cost of production have, in the opinion of the committee, been largely retained by the manufacturer, and used by him for high pressure marketing on that part of the product sold through jobbers, and branded, while the identical goods without brand are sold through competitive channels at much lower prices. It is believed that the function of marketing, as well as a large part of the physical distribution, can be most efficiently and economically performed by jobber and dealer.

## Conduit Fittings

It was recommended that investigation be made to determine whether jobbers' stocks and investment in this line could be reduced, and important economies accomplished by the elimination of certain unnecessary intermediate sizes of fittings through the use of face reducing bushings.

It was also recommended that manufacturers of switch boxes now designated by names and types be assigned universal catalog numbers wherever the product of the several manufacturers is comparable in specifications.

## Dry Batteries and Flashlights

The committee believed that the radio socket-power will in the future reduce to a considerable extent the demand for dry batteries in the radio trade, and was of the opinion that this possible reduction in the demand for dry batteries would be compensated for by the increased demand for radio socket-power.

## Radio

Recommended that manufacturers of radio receiving sets pack radio tubes for the set in the same carton as the set, and that the complete outfit of receiver and tubes be adver-

tised as a unit, and it was believed that the distributor, and in turn the dealer, should receive the same discount on the unit as on the receiving set alone.

The committee looks with much favor on the practice of manufacturers who guarantee their product against decline for the season.

The committee again calls attention to the fact that the present consignment plan for distributing Mazda lamps has been very successful, and invites manufacturers of radio tubes to study this plan with the idea that a plan such as this will provide wider distribution of radio tubes, and make it much easier for the consumer to purchase in his immediate neighborhood.

The committee called the attention of members to the fact that many distributors have been more than liberal in their replacement of so-called defective tubes, and that many manufacturers are tightening up on adjustments to distributors. The committee feels that if this is not closely watched distributors may find that they may have a large loss on unadjusted tubes.

The committee called attention of members to the increasing insistence of manufacturers for commitments for merchandise far and beyond what the distributor considers he should be asked to risk, and it was suggested that members watch their requirements and purchase with the greatest care.

The committee reported that it found that certain manufacturers are paying their distributors for repairing factory defects in their merchandise, and believed that since the manufacturer is responsible for these defects, the distributor should not be called upon to bear this expense, and therefore recommended that all members keep it in mind that manufacturers should reimburse them for this service.

In the opinion of the committee it is not the function or duty of the distributor to pay any part of the manufacturers' or dealers' advertising, out of his profit, and recommended that members ask manufacturers to appropriate a percentage of the distributors' purchases, for the use of distributors, in dealer sales campaign advertising.

## Wiring Devices

The committee believed that at present the most important subjects involved in the efficient distribution of wiring devices are:

*First*, further elimination from the wiring device line of odd numbers of limited application and doubtful value.

*Second*, more study and analysis of proper

Elimination of odd numbers which have a slow turnover, proper packaging for simplification in billing as well as handling, and cataloging of some items by universal numbers instead of by confusing names and types, were all recommended as tending to increase efficiency. The committee on merchandise recommendations submitted the following, which were adopted by the convention:

unit quantities for packages and cartons, to fit economic conditions, and recommended:

A. That the national representative continue activities towards simplification along channels and through contacts already established with the Department of Commerce.

B. That individual members take advantage of the present inventory season to personally study wiring device numbers which show little or no turnover, and that the results of such study be reported to the national representative.

C. That members request their stock record men to study and assemble data showing the unit quantities of staple wiring devices that appear to be popular and economic from the standpoint of buyers, and forward such information to the national representative for consideration of the wiring devices committee.

## Pole Line Hardware

Manufacturers are to be asked to study prices on complete distributing brackets with insulators, as compared with price when same commodities are purchased in separate parts, and the recommendation was also made that manufacturers be requested to pack pole line and strain insulators, wherever possible, in boxes instead of in barrels or kegs.

## Lighting Fixtures and Reflectors

The committee recommended that the following suggestions be presented to the glassware manufacturers:

1. Adoption of metric system in billing, by quoting price per unit, or per 100.

2. Re-arrangement of packing in the most convenient units, to conform to this system, as rapidly as possible.

The committee felt that the adoption of these suggestions would ultimately work economy for manufacturer, jobber and dealer, in handling, pricing and billing, and would eliminate errors and omissions in rebilling by the jobbers.

The committee recommended that fixture manufacturers, through their organization, the Artistic Lighting Equipment Association, be requested to study the question of improving the methods of packing of fixtures as handled by the jobber, and specifically recommended the following suggestions, which have already been adopted by some lighting equipment manufacturers.

1. Pack in individual cartons, and where practical individual cartons in standard packages.

2. Each carton to be clearly labeled with number, size, etc., and particularly finish.



3. Where glassware is furnished with unit, the number of pieces necessary for the particular unit, to be packed in one carton and clearly labeled, showing the number of pieces contained in cartons, and number and description of the particular fixtures to which it belongs.

4. All packing charges to be included in the prices of the goods.

#### Fan Motors

The committee renewed the recommendation that the 12 in. non-oscillating fan should be discontinued as unnecessary.

The committee gave consideration to the fact that the intermediate fan between the 12 in. and the 6 in. is produced by different manufacturers in sizes varying from 8 in. to 10 in. The desirability of adopting a uniform size for this intermediate fan is obvious, but the manufacturers, after many months of deliberation, are unable to agree upon the correct size, and the committee itself is divided in opinion, three favoring the 9 in. blade, and five favoring the 10 in. The committee, however, unanimously agrees that a solution of the problem should be had, and recommends that the national representative be requested to submit this entire matter to the division of simplified practice of the Department of Commerce, to the end that a survey may be made, from the standpoint both of consumer and manufacturer, and that some recommendation may follow which will tend to lessen or eliminate the confusion now resulting from the production of three separate sizes so nearly equal in performance.

#### Heating Devices

The committee reported that the heating devices section of the National Electric Manufacturers' Association is working to promote safety and fire hazard standards. A new standard was recently set up on heater cord that will greatly prolong the life. It is believed that as soon as these various standards are established that the label service requested by this Association would receive serious consideration.

#### Lamp Committee

The committee reported that as a result of inquiries made by the national representative it appeared that the consensus of opinion of members seemed to be that the new rule regarding the appointment of probationary lamp agents was satisfactory, and had resulted in a reduction of loss in handling such agents. A suggestion was made regarding the advisability of decreasing the minimum amount necessary to qualify in certain large cities from \$300 to \$150, but the manufacturers were of the opinion that the present rule had not been in effect a sufficient length of time to obtain conclusive results, and that the proposed reduction should be further investigated before any action was taken. The manufacturers stated that the present ruling governing probationary agents had so far resulted in a reduction from normal of 30 percent in the number of probationary agents, but an increase in the percentage of mazda lamp business to the total lamp business.

The manufacturers called attention to a campaign for the use of lamps of proper voltage, and asked the assistance of B agents and their A agents in assisting to put this over in the various communities where they operate. They also called attention to the campaign now in effect for better commercial lighting, and requested the help of their agents in this effort.

## How Much Fusing is Needed?

By F. N. M. SQUIRES

Assistant Chief Inspector, New York Board of Fire Underwriters

ANSWERS to questions, and comments in recent correspondence with contractors, inspectors, manufacturers, etc., indicate that the matter of 0-15 amp. fuses is a subject for lively discussion throughout the industry. It is conceded and claimed quite generally that the present type of fusing does not secure proper and adequate protection in places where 0-15 amp. protection is required or desired.

Below are some expressions of men in various branches of the trade—engineers, contractors, inspectors, central station executives, manufacturers, etc.

"Observation for many years proves the necessity of a fuse block or cutout to take no larger than a 15 amp. fuse and rules to enforce its installation."

"Report 25 amp. fuse in branch circuit (rules limit it to 15) caused fire loss of \$1,200."

"Store in ——— with 3,740 watts on one circuit, fuses bridged with pennies; five circuits in the risk and only one 15 amp. fuse found. The meter had burned up, one cutout had become overheated and was beyond repair. This same utility company had three other meters burned recently from similar causes."

"Curling iron with No. 18 wire short circuited, blowing the fuses. These were bridged and soon smoke was seen and rubber was smelled burning. Before damage was done to the building a circuit wire opened up. The entire dwelling had to be rewired."

"In a ——— city a lady was using an electric iron. The cord short circuited, burned a hole in the waist and sleeve of her garment and made injuries to her body because of a bridged cutout. The fusing of the cord prevented a serious fire in this case."

"A questionnaire was sent out to all members of this association and of the replies over 90 percent reported abuse of the branch fuses."

"The ——— Fire Prevention Bureau is thinking seriously of advertising an increase in the fire insurance rates on all buildings in which plug fuse cutouts are used; that is the type of plug fuse that is easily bridged with a penny."

From report of a state fire marshal: "We are positive from personal contact with electrical fires that, other than the

sad iron, over-fusing is mostly responsible."

"It has been our experience that if a fuse blows the customer will either install a fuse much larger than is necessary or he will put in a penny, copper wire or other material to jump the fuses."

"A fire occurred in residence at ——— which was directly traced to fuses being backed with pennies, both in main line and branch block."

"Thirty-eight thousand premises inspected; 17,805 fuses changed or renewed for following reasons: 17,281 on account of wrong ampere capacity; 1,472 plugged with anything from copper pennies to steel bolts."

N. E. L. A. 1925-1926 report of Wiring Committee, in part: "One of the difficulties presented by the use of household appliances is in connection with those requiring large currents up to 15 amp. It has been suggested that as the present limitation of the branch circuit is in reality the fuse a new type of fuse and fuse receptacle designed for branch circuit of only 15 amp. might afford a solution of some of the difficulties. A specially designed fuse and fuse receptacle would not only possibly solve these difficulties, but would offer a means whereby the present over-fusing of branch circuits might be considerably reduced."

"Have had years of experience with small motors and have investigated a number of fires caused by over-fusing of small motors. A foolproof and troubleproof switch and circuit breaker on devices of this character would eliminate a number of casualties."

"The biggest joke in modern electrical science is the modern fuse."

"I should judge that 80 percent of fires caused by current can be traced back to sluggish fuses or over-fusing."

"Fuses were all right 25 years ago when the loads were light and everyone was afraid to touch a fuse or switch. Today we have outgrown the fuse stage."

"Our experience is that nearly all customers over-fuse, causing motors to burn up, thereby creating a fire hazard."

"This is a long much needed requirement."

"Proper protection spells safety."

# Chats on the National Electrical Code

*A Monthly Discussion of Wiring Practice and Questions of Interpretation, Presented with a View Toward Encouraging a Better Understanding of the Industry's Most Important Set of Rules*

Conducted by F. N. M. SQUIRES  
Assistant Chief Inspector, N. Y. Board of Fire Underwriters

## Trough Wiring

In the November issue of this magazine there appeared an article on trough wiring, which raises some interesting Code questions. One in particular, which I wish to strangle before it gets too far, is the question of the number of wires to be used in such a trough.

The article makes the statement that the reason for a limit on the number of wires allowed in a conduit is because "a large number of wires tend to bind in passing around elbows and that the insulation may possibly be injured and that trouble in one circuit should be localized so that it will not be communicated to more than two or three other circuits."

A few years ago there were no restrictions in the Code on the number of wires so allowed. Then the buildings in large cities began growing in size and consequently the number of wires needed became greater. Also, the illuminating companies began to realize the great amount of time which was being lost due to their employees having to go up through buildings to read meters. They conceived that this could be avoided by placing the meters in the basements. This, of course, meant that a multiplicity of wires had to be carried up through the building and as no rule at that time prevented it large numbers of wires were run in a single conduit. And then it was simply a question of getting a single pipe large enough to hold all of the required number of wires.

Soon the hazards attached to this method became manifest. Here were great masses of wires jammed together in one pipe. If one of these wires burned out it affected all of the others, which not only enormously increased the repair cost, but also paralyzed electrical service for the entire area supplied through the one conduit.

The great amount of inflammable ma-

terial used, rubber and braid, created such a dangerous condition that the conduit system might not confine the disturbance and that the fire might get away at some panel or pull box. Pressure was brought to bear on the Code committees and limits placed on the number of wires which could be run in a single conduit.

Only a short time ago there occurred a loss which was greatly increased due to the mass of wires used in a trough system. The chances are that the disturbance originated in a single conductor, but because of the conditions amounted to a \$25,000 repair job besides putting the building with its expensive operations out of commission until repairs could be completed. If a conduit system with a limit of nine wires had been employed the loss would hardly have gotten out of the two figure class.

As this system of trough wiring cannot be considered as conduit in applying the Code, it would normally fall under rule 504, "Other Wire Raceways." But section 504 clearly was intended to cover what used to be termed "Metal Moulding" and the restriction of 504f limiting the wires to not more than four—No. 14's would be unjustified in connection with this trough system.

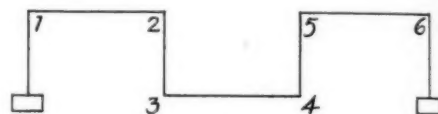
The trend of requirements may be seen in the 1926 Supplement of the Code where in rule 506o the number of wires in "Underfloor Raceways" is limited to not more than 10. It most certainly will follow that, if a raceway which is protected with concrete flooring must not contain more than 10 wires, a raceway such as this proposed trough system, installed free from other protection, will have a limit placed on the number of wires which will be allowed in it.

It would be well, then, to consider the number of wires as limited to 9 or 10, or to obtain special permission for

a greater number from the inspection department having jurisdiction before laying out such a system.

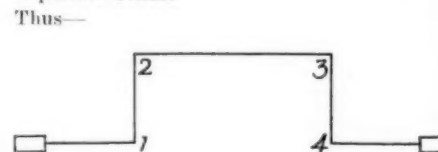
## Rigid Conduit Runs

Section 503-f states a run of conduit, between outlet and outlet, etc., shall have not more than the equivalent of 4 quarter bends, the bends at the boxes or fittings not being counted. This would permit the equivalent of 6 quarter bends in a conduit as shown by sketch.



It is considered by contractors here almost impossible to pull wires which occupy 35 percent space of the conduit around more than 4 quarter bends without injury to the wires. Therefore we do not permit more than 4 quarter bends in any run of conduit, including the bends at the outlet or fitting. This is also a State Electric Safety Order Rule.  
—R. H. Manahan.

[EDITOR'S NOTE: We do not quite agree that the 6 quarter bends as shown above are allowable according to the Code as bends 1 and 6 are not "at the box" and therefore must be counted in on the conduit run, making 6 quarter bends. What rule 503F intends we believe, is that the deflections, or "bends" of the wires at the end of the conduits in the boxes need not be counted as "quarter bends." Thus—



It might also be noted that a multiplicity of bends as shown below is permissible.



Here are 8 bends but they are not 90° or quarter bends, but are 45° or one-eighth bends and of course total to 360° or the equivalent of 4 quarter bends.]



### Mechanical Work on Conduit

Section 503-g does not mention how conduit should be made mechanically secure in outlet boxes or fittings. This section requires only a bushing to be placed on end of conduit to protect the wires. "Mechanically secure" has been interpreted by this department as follows: Boxes or fittings having (what is commonly called) "knockouts" shall have a lock nut on each side of the box and then a bushing on the end of the conduit. In other words, a "double lock nut" job.

Note: After a recent fire in a 5-room house, (a total loss), one of our inspectors found the complete run of conduit intact but on the ground where it had fallen (with the ceiling), upon investigation it was found to be a "double lock nut" job and not a single conduit pulled from the box.

—R. H. Manahan.

### Grounding Service Conduit

503-h does not require a service conduit run of any length be grounded nor an isolated (circuit) run 25 ft. or less, providing said conduit is not within reach of a metallic ground, but by reference to 405-C-1 we find an air break or oil immersed switch must be grounded, assuming the conduit terminates in one of the above named switches, then the conduit automatically becomes grounded.

What is the object of requiring a ground on a switch but not on a conduit? Due to the above inconsistency this department requires all service conduit, regardless of length, be grounded. And any circuit run must be grounded if it is subject to, or within reach of metallic ground or grounded conditions regardless of the total length of the run in question.

It will be noted this section does not refer to cement or earth ground; therefore it would be assumed if the conduit is over a concrete or earth floor but not adjacent to a metallic ground it need not be grounded. This department, however, considers the above as a ground condition.

### Motors in Dusty Places

Recently there occurred a fire in a paper mill chip house. The fire was attributed to "overheating or a burnout in a three phase 440 volt squirrel cage motor of the semi-enclosed type." It might not have started at the motor, as no one actually saw where it started,

but other fires that did not cause such great amount of damage were discovered at the motors. The motors in a chip house of a paper mill are subject to some accumulation of dust and flyings of combustible material. A rough estimate based on experience with motors in all classes of occupancy would lead us to judge about 90 percent of the open or semi-enclosed motors as unsuitable for the location in which they are installed.

The early type of electric motors used to replace steam engines and other forms of motive power were designed simply to supply a demand for some form of power unit. Almost any type of motor that would revolve and furnish sufficient power was installed to drive the main belt. This motor was located alongside the steam engine, the latter generally being held in reserve and was frequently used when the power station shut down.

Later on this single motor drive with its forest of belting and pulleys was replaced by a motor driving a single line shaft. Both these types of motors were cleaned off, painted in bright colors and oiled frequently. They received about the same attention as the steam engine.

At a still later stage motors directly attached to machines or to a single belt driving only one machine made their appearance. At this stage of motor driven machinery a revolutionary change took place. The motors were released from the care of the old time steam engineman, with his handful of clean waste, and motors practically lost their identity as the main arteries of the establishment. They were treated like loose pulleys or pieces of the machinery to which they were attached.

If the piece of machinery happened to be in a dirty place and seldom received cleaning the motors were treated likewise. This kind of plant operation caused motor trouble and the shutting down of machines and consequent loss of time and efficiency. Such unsuccessful operation was bound to result in complaints regarding the efficiency of electric motors for driving certain classes of machinery, and belts and shafting were actually substituted in some few instances. Motor manufacturers realized that something must be done to improve the type of motors and the control apparatus. The efficiency

of a motor driven factory should be of the highest quality. America owes its very existence as an industrial nation to the fact that we can, with the use of efficient machinery, manufacture better and cheaper goods than can be made with less efficient methods abroad.

Fires that result from improperly installed or designed motors tend to lower the efficiency, and even though fires do not actually occur from motor burnouts the shutting down of the machinery to repair or replace damaged motors means considerable loss of time. Motor manufacturers realize that to remedy inefficient operation they must design motors so that they will not be damaged, or cause fire in the manufacturing process, and the purpose of this article is to tell the users, designers and installers of electrical motor equipment that motor manufacturers are prepared to furnish them with enclosed motors that are cooled by various means at a slight additional cost over the open and dangerous type of motors.

—George Welman.

### Neon Light Signs

Recent innovations in the field of high potential vacuum or rarefied inert gas tube lighting call for a more detailed treatment of this subject in the N. E. C. than given in present rule 5002. Heretofore this type of lighting has received only a very limited application, but with the rapid development of the inert gas tube system of sign and outline lighting inspectors generally are commencing to feel the need of more detailed guidance for installations of this type.

When we analyze the various factors entering into the wiring of these high potential tube systems it is apparent that Rule 5002 incorporates the fundamental requirements necessary to safeguard installations of this character and that with a few minor changes and additions the rule can be brought up to date. Article 38 should contain some reference to high potential tube systems for signs and outline lighting. A mere reference to Section 5002 will suffice unless it be deemed advisable to incorporate in the N. E. C. detailed specifications covering construction of inert gas signs and outline lighting similar to the present detailed treatment of the incandescent sign and outline lighting.

(Continued on page 39)

## Cooperative Campaign Produces

# Ninety Store Lighting Contracts

By R. B. KELLOGG

Manager, Electrical League of the Tri-Cities

**N**INETY new store lighting contracts, amounting to a total of \$10,000 worth of new business, was the immediate result of the cooperative campaign just finished in the Tri-Cities—Davenport, Rock Island and Moline—under the auspices of the Electrical League of the Tri-Cities. A large number of additional contracts will undoubtedly come through after the close of the campaign. The details of the campaign, as an example of what can be accomplished by cooperative effort, should be of interest to everyone in the industry.

Merchants of the Tri-Cities held their annual fall opening the week of September 12, and hence that was decided to be the opportune time to begin activities. Intensive selling was set for September 19 to 30. The extensive selling plan for those merchants known to be less receptive toward better lighting, began October 1, and ran to December 1.

On September 12, each of the thirteen hundred merchants in the Tri-Cities received a letter calling attention to certain stores which were well wired and which demonstrated proper show window illumination. They were also invited to three demonstrations of cor-

rect store lighting, which had been especially installed for their benefit. In the same mail was distributed a booklet, "Building Store Profit with Light." From then on, three other pieces of publicity broadsides were sent out and finally a postal with a return mailing card.

Temporary lighting demonstration stores such as were opened in Davenport, Rock Island and Moline, have been seldom used in other cities during similar campaigns, because of the possible expense and labor concerned. The arrangement of the exhibits is a big task and were it not for the splendid cooperation of the jobbers and contractors, our stores would have been failures. Each of these stores had been vacant for some time previous and required much renovating in connection with a complete rewiring job, new outlets had to be located throughout the store and the windows. The general lay-out consisted of 300 watt clear Mazda lamps installed on 10 ft. by 10 ft. centers, using glassware 16 in. in diameter. These luminaires were furnished without cost by the jobbers, as was also the other equipment. The standard of show window illumination was 200-watt lamps, lo-

cated in outlets approximately 12 in. apart, using mirrored glass and prismatic glass show window reflectors. All installation work was done at cost by the electrical contractors.

Actual selling was allotted to the electrical contractors with such assistance as might be offered by manufacturers' representatives and central station lighting specialists. Since this main sales work was assigned to the contractors, it was decided to hold the second electrical league lighting school just prior to the intensive selling. Special emphasis was placed on commercial lighting and selling methods. The electrical league was fortunate to secure for instructors illuminating engineers from the Mazda lamp companies and the manufacturers of lighting equipment.

At the close of the lighting school, each of the sixteen electrical contractor members of the league was given forty cards, bearing the names of merchants known to be interested, or in a position to buy lighting equipment. Instructions were given to solicit each. As an incentive to promote selling, the electrical league offered three prizes, totalling \$85.00, for the three contractors securing the greatest number of jobs. The



Model Show Window Lighting



Model Store Lighting Exhibit



degree to which this was accomplished is indicated in the tabulated results:

TABLE 1  
Results of Campaign

Number of merchants to be solicited..	640
Number of solicitations actually made..	210
Percentage of solicitations.....	33%
Number of contracts resulting from solicitations .....	90
Percentage of results from solicitations	43%

These results show ninety contracts, which totaled nearly \$10,000. The winner of the first prize of \$50.00 benefited through signed contracts to the extent of \$2400.00 and was promised several larger jobs, which were secured after the contest period closed.

The expense of such a campaign is well within the possibilities of any organization and the results will justify the expenditure. With the elimination of two of the stores, which would be unnecessary in usual communities of only one city, the expense would be less than \$1,000.

The energetic lighting specialist often points out to the merchant how light properly applied can increase the attractive power of show windows. Statistics are given concerning windows in Newark, N. J., Cleveland, Chicago or some smaller towns in New York State. The store operator is only passively interested in such details, for he believes the same facts could not be borne out in his community. Appreciating this fact, the electrical league set out to ascertain the number of people who passed by the windows which had been specially lighted for demonstration in this campaign and the number who stopped to look at the display. In contrast to this information, it was decided to find the number of people stopping at a poorly lighted window. These results were obtained during one hour, on an average evening during the week. Rain interfered throughout the entire week with taking further tests.

TABLE 2  
Effects of Proper Show Window Lighting

Stores	Persons Passing	Stopping at Well Lighted Windows	Percent	Stopping at Poorly Lighted Window	Percent
Store No. 1	354	150	42	12	3.3
Competitor	404			18	4.5
Store No. 2	249	79	32		
Competitor	321			21	6.5

At the conclusion of this first two weeks of intensive work, it was decided,

due to the importance of the Commercial Lighting Campaign, the timeliness of the activity and the amount of money expended, to continue the good work for another sixty days. Prizes are to be awarded for the results of this next campaign.

### Code Chats

(Continued from page 37)

Owing to the many changes and rapid advances which are being made in the field of inert gas lighting no set of standards would be in date very long, and, for this reason, treatment in the N. E. C. should, in this case, be general rather than specific. I believe the following simple amendments to Articles 38 and 50 would furnish ample guidance in the installation of vacuum or inert gas tube systems for sign and outline lighting as well as general utility lighting.

Amend Section 3801 by adding a paragraph to read as follows: (b) Signs and outline lighting which employ vacuum or inert gas tube systems shall, in addition to the requirements of this article, comply with the provisions of Section 5002 of this Code.

Amend Section 5002 to read as follows:

5002—Vacuum and inert gas tube systems.

(a) The tube shall be substantially supported and so installed as to be guarded from mechanical injury or contact with inflammable material. The tube terminals shall be installed in metal enclosures of not less than No. 24 U. S. metal gauge, or in non-combustible, non-absorptive insulating enclosures especially approved for the purpose. Openings in tube terminal boxes shall be equipped with insulating bushings so designed and installed as to render impossible contact by persons with any live parts. Connections at electrodes shall be mechanically and electrically secured and shall in addition be soldered unless an approved solderless connector is used.

(b) High potential transformers and other high potential equipment shall be installed in standard cabinets or cutout boxes unless placed within the metal enclosure provided for tube terminals. High potential conductors outside of cabinets and tube enclosures shall be installed in metal conduit.

(c) Circuits shall be so arranged

that no set of transformers requiring more than 1,200 volt-amperes will be dependent on a single cutout. Branch circuit cutouts shall be placed in approved cabinets or cutout boxes. Additional cutouts for the individual protection and disconnection of transformers in signs may be placed within the sign structure if located adjacent to the transformers which they protect.

(d) The transformers, tubes and other apparatus and the conductors in the high potential circuit shall be especially approved for such use. High potential conductors shall be not less than No. 14 B. & S. gauge and shall be provided with insulation which will withstand at least four times the open circuit voltage of the transformer secondary.

(e) Low potential wiring entering high potential cases shall comply with all applicable requirements of other sections of this Code.

(f) Enclosures for transformers and regulating coils shall be well ventilated in such a manner as to prevent the emission of any flame or sparks in case of burn out of any of the coils. All metal enclosures shall be permanently and effectively grounded. No grounding conductor shall be less than No. 10 B. & S. gauge in size (provided, however, that a No. 14 B. & S. gauge conductor may be used for bonding together isolated tube terminal boxes or outline lighting systems.)

—L. W. Going.

### Co-operative Collection Effort Succeeds

A collection service operated by the Grand Rapids Electric Club, in conjunction with its credit information service, recently proved its success. The Dunn Electric Company sent out a quantity of the collection letters provided to customers who had ignored the regular statements and requests for payment. As a result of the letter 90 percent of the delinquents answered within a few days and 75 percent of them sent in their money. The letters are multi-graphed on the service bureau letterhead and are sold to members at 12 cents each in small quantities. They are then sent out by the contractor as he wishes. The Electric Club also runs a credit information service which gets reports from members on customers.

# *The Electragist*

Official Journal of the  
Association of Electragists—International  
S. B. WILLIAMS  
Editor

## **New Wiring Methods**

The electrical contractor has been accused of standing in the way of new wiring developments which would reduce the cost of wiring. He has been accused of promoting high quality wiring methods because they commanded a higher price and anything that might tend to lower that cost was "persona non grata" to the contractor.

What bunk!

There are certain central station people who still believe that before the public can be sold an adequate job of wiring it must be offered a wiring method which will permit installations or additional wiring—especially in old houses—at a much lower price. In their effort to secure a hearing they invariably accuse the contractors of being in the way of progress. Such statements can have no other effect than that of inflaming the minds of other central station managers and new business men against the contractors.

But to get to the subject—the electrical contractors have never as an organized body worked for any particular system of wiring or against any system of wiring because of price. The electrical contractors have probably contributed more materials, fittings, tools and devices which would reduce the cost of wiring than any other branch of the industry.

The electrical contractor is opposed to any new wiring method—no matter what its cost—if it means a lowering of American standards of safety.

If new materials or new methods can be found which will assure the public of an equal or greater degree of safety, and still be in conformity with American standards of living, the electrical contractors will accept them eagerly, no matter how low the cost.

With an industry so beset with competition, especially in housewiring, how can anyone say that the contractors would not welcome a lower cost of wiring methods?

The electrical contractors are not, never have been and never will be afraid of true economies in wiring—they will do everything to encourage these economies.

We believe it is a good thing for the electrical industry to be constantly alert to the necessity for finding more economical and efficient ways of doing things. We also believe, however, that we should recognize the trend in construction of the modern American home which is now being built on the theory that the best is the cheapest in the long run.

The rewiring of the American home can be done with exposed work and it will give service with safety and low cost—but will it be in keeping with the home construction?

The public isn't going to thank the electrical industry to find something which has as its only recommendation—its price.

Ford found that out.

## **Restriction of Competition**

As competition grows there is the human inclination to restrict it by one means or another. Efforts have been made to secure license laws with heavy fees and bonds, to set up by law certain conditions as to business methods, to have secret agreements with the unions, to parcel out jobs by a system of bidding, to agree on fixed unit prices, to limit credit and sometimes even sales by local jobbers to only members of certain local organizations—all have failed.

It is impossible to restrict competition by any artificial means. A scheme might work for a period but, sooner or later, its weak spot will show up.

However, there is a way to restrict competition that is just and effective—the economic way. No man has a right to enjoy credit unless he can and does pay his bills. Let the jobbers of any community decide to allow credit only to those entitled to it and immediately those who have been pyramiding will start to fade out of the picture.

Labor must be paid weekly and if material bills are also paid promptly the contractor must at least get his prime cost and overhead for his work or else go the way of the bankrupt—and quickly.

The bad competition comes from those who are insolvent, know it and are fighting against hope, taking anything they can get at whatever price they can get it. A sound credit policy on the part of jobbers is needed to protect the legitimate trade.

## **Industry Sales Conference**

The Electrical Industry Sales Conference held its first meeting the Monday before Thanksgiving Day. Because of the possibilities before such a conference and the ramifications of things that might be discussed, no program was presented by any one interest. The day was spent by the conferees in organizing and getting their bearings.

The first sales problem facing the industry, the Conference agreed, is that of bringing up the house wiring of the country to a basis of adequacy—both new wiring and rewiring. Inasmuch as the sales conference was the outgrowth of the Industry Wiring Conference this first step was naturally expected.



The Conference did, however, voice one very constructive thought, namely that some way must be found to make a better sales force out of the electrical contractors. By this action the Conference recognizes the contractor as the neck of the bottle through which the wiring sales must pass. If the contractor is not fitted to handle this job in a creative way, the force of national sales promotion will be greatly weakened.

The Association of Electragists has endeavored for years to carry this load. It just couldn't be done. The education of the contractor group is the job of the industry, and for the Sales Conference to suggest that the problem be given consideration is tantamount to saying that it is recognized as an industry problem.

The Sales Conference will of course accomplish many more things than finding a way to improve the contractor situation, but if it did not, success in this one direction would be sufficient achievement.

Every interest is represented in the Conference—every interest is anxious to see it succeed. At last the electrical industry is united. Great things are expected of the Conference.

### Thin Wall Tubing

Conscious of the bitterness of the battle sheathed cable went through before securing Code recognition, the electrical industry is wondering how thin wall conduit or tubing, as it probably will be called, is going to fare in the meetings of the next three months. This product has been submitted to Underwriters' Laboratories which, in accordance with the new method of procedure, has made a confidential fact-finding report to the applicant.

While we have not seen the report, it is doubtful if it was of a discouraging nature, for the Electrical Committee has been asked to recognize thin wall tubing in the National Electrical Code and members of Article 5 Committee, under whose jurisdiction this would come, have been furnished with copies of the Laboratories' report.

A month ago a technical sub-committee was selected, composed of two central station men, one telephone man, two insurance representatives, two municipal inspectors, one architect and one contractor. There were no manufacturers' representatives on the committee. This committee has made its report.

A number of interesting points naturally arise in the consideration of this material. First of all it is not a new material. A thin wall duct of approximately the same gauge but oval in shape, has been on the market for some time. Unfortunately, the Code has not designated how or where it may be used. It belongs in the class with metal wire raceways.

It was confusing to have the material designated as "conduit" but that was due to its shape and size. Conduit, as known in the electrical trade, is round, comes in 10 ft. lengths, has a great mechanical strength and can be threaded. For use with it are supplied standard conduit fittings of several makes. Thin wall tubing cannot be

threaded to take a standard conduit fitting and still have any strength left at the thread end, simply because there is not enough metal. However, if the outside diameter is the same as that of standard rigid conduit there will always be the temptation to use threaded fittings and after the material is in place no inspector could tell whether the thin wall tubing or standard conduit was being used. Because of the method of installation it would be impossible to identify the thinner material in any other way than by shape, if it has the same external diameter as rigid conduit.

There has been the thought on the part of some people that the introduction of thin wall tubing would mean competition with standard conduit. The more one studies the thin wall tubing, however, the more one is inclined to believe that it will offer little competition to the more rugged material. It will not stand the abuse of new construction, it cannot be safely threaded, it has not the bending radius of standard conduit.

That thin wall tubing has a place, however, as a recognized wiring material none will deny; we have for years found surface raceways to provide satisfactorily for certain classes of work. On the other hand, we must recognize that thin wall tubing does not afford the same mechanical protection as rigid steel conduit and that its use, therefore, must be much more limited.

The Article 5 Committee, therefore, has but to decide where and how thin wall tubing may be used and how it may be identified.

### The "Where" in the Code

From the very beginning the National Electrical Code has ruled "how" electrical wiring is to be installed and "where" certain classes of material may and may not be used. That is the purpose of an installation code.

For one reason or other, however, the code makers in recent years have been very neglectful of rules stating "where" different materials might be used to conform to changing conditions of living or building construction or what not. In the meantime one city after another has taken the matter in hand and either through ordinance or special rules of the city inspection department have set up very definite rules governing the use of materials.

In this way the Code became threatened with denationalization and at once forces were rushed to its assistance including an electrical field secretary of the National Fire Protection Association. It was soon apparent to the field secretary that if the Code was to become a true national instrument it must more clearly reflect progressive thinking and serve as a guide to local departments. Inspectors do not want to be placed in the position of making what seem to be arbitrary decisions as to where this or that may be used, when the Code does not cover the situation. Some set of rules will cover such situations. Shall these rules be local departures or will they be the National Electrical Code?

If the slogan "Let the Code Decide" is to mean anything at all the Code must decide "what," "when," and "where."

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Indian Riv. Dist. (C)...	I. A. Paige	Vero Beach	Yonkers (C) .....	Louis Mayer	485 South Broadway
Jacksonville (C) .....	W. A. Harper	108 W. Bay St.	<b>OHIO</b>		
Miami (C) .....	E. A. Robinson	118 N. W. First Ave.	Akron (C) .....	E. C. Rishel	540 East Avenue
Orlando (C) .....	Solon M. Lantz	833 E. Concord	Canton (C) .....	H. S. Hastings	301 New Vickery Bldg.
St. Petersburg (C) .....	Gardiner Blackman	P. O. Box 992	Cincinnati (C) .....	J. F. Riehle	1642 Cedar Ave.
Tampa (C) .....	P. F. Lyons	73 Walton St.	Cleveland (C) .....	F. T. Manahan	Chester Twelfth Bldg.
<b>GEORGIA</b>			Columbus (L) .....	O. A. Robins	1242 Oak Street
Atlanta (C) .....	B. K. Laney	Byck Electric Co.	Lorain (C) .....	A. B. Walton	3150 E. Erie Ave.
Savannah (L) .....	Sylvan M. Byck		Toledo (C) .....	Fred C. Dunn	Builders' Exchange
<b>ILLINOIS</b>			Dayton (C) .....	Clarence Carey	1107 South Brown St.
Chicago			Massillon (C) .....	F. D. Mossop	c-o Mesco Electric Co.
Electrical Contractors' Association .....	J. W. Collins	228 No. LaSalle St.	North Ohio (C) ....	R. A. Wentz	Elyria
Master Elec. Contractors' Association .....			<b>OKLAHOMA</b>		
Decatur (C) .....	F. J. Boyle	304 S. Halsted St.	Pawhuska	C. G. Sego	Pawhuska
Granite City (C) .....	Earl Weatherford	114 East William St.	<b>OREGON</b>		
Peoria (C) .....	William W. Huxel	1254 Niedringhaus Ave.	Portland (C) .....	J. R. Tomlinson	51 Union Ave. N.
Rockford (C) .....	L. B. Van Nuys	238 So. Jefferson Ave.	<b>PENNSYLVANIA</b>		
Springfield (C) .....	Donald Johnson	106 North Second St.	Altoona (C) .....	Walter Bracken	Leechburg
Wheaton (C) .....	A. D. Birnbaum	916 West Cook St.	Allegheny Valley .....	E. G. Jackson	12 West Third Street
<b>INDIANA</b>			Du Bois (C) .....	C. E. Blakelee	12 E. Long Av.
Lake County (C) .....	A. R. Irwin	133 West Front St.	Erie (C) .....	R. D. Goff	11th and French Sts.
Indianapolis (L) .....	A. W. Kruege	3461 Mich'n Av., Ind. Har.	Lehigh Valley (C) ....	A. W. Hill	Bethlehem
Michigan City (C) .....	Walter A. Sassodeck	2405 E. Tenth St.	Philadelphia (C) .....	M. G. Sellers	1202 Locust Street
Muncie (C) .....	Harry McCullough	913 Franklin St.	Pittsburgh (C) .....	D. A. Fleming	518 Empire Bldg.
South Bend (C) .....	R. A. Frink	113 W. Howard St.	Wilkes-Barre (L) ....	Leon N. Sell	Town Hall
Terre Haute (C) .....	C. N. Chess	1338 Howard St.	<b>RHODE ISLAND</b>		
<b>IOWA</b>			Providence (C) .....	H. E. Batman	36 Exchange Place
Cedar Rapids (C) .....	H. E. Neff	94 First Ave., West	<b>SOUTH CAROLINA</b>		
Davenport (C) .....	Louis F. Cory	510 Brady St.	Charleston (L) .....	J. P. Connolly	141 Meeting Street
Des Moines (C) .....	Floyd J. Moeckly	521 Hubbell Bldg.	<b>SOUTH DAKOTA</b>		
Fort Dodge (C) .....	J. A. Paul	16 So. Twelfth St.	Sioux Falls .....	H. W. Claus	326 S. Phillips Ave.
Sioux City (C) .....	E. A. Arzt	211 Fifth St.	<b>TENNESSEE</b>		
Waterloo (C) .....	R. A. Cole	Cole Bros. Elec. Co.	Chattanooga (L) .....	P. W. Curtis	725 Walnut Street
<b>KANSAS</b>			Knoxville (L) .....	Jerry G. Cason	303 West Church St.
Salina (C) .....	C. G. Loomis	814 Cedar St.	Memphis (L) .....	J. J. Brennan	12-16 So. Second St.
Wichita (C) .....	P. W. Agrelius	Wichita	Nashville (C) .....	J. T. Shannon	c-o Electric Equip. Co.
<b>KENTUCKY</b>			<b>TEXAS</b>		
Lexington (C) .....	J. H. Brock	235 East Main St.	Beaumont (C) .....	J. A. Solleder	Houston & Bolivar Sta.
Louisville (C) .....	C. L. W. Daubert	921 South Third St.	Dallas (C) .....	P. B. Seastrunk	2032 Commerce St.
Paducah (L) .....	K. H. Knapp	c/o Paducah Electric Co.	Houston (C) .....	J. W. Read	715 Capitol Avenue
<b>LOUISIANA</b>			<b>UTAH</b>		
New Orleans (C) .....	I. G. Marks	406 Mar. Bk. Bldg.	Ogden .....	B. Kristofferson	2249 Washington Ave.
Shreveport (C) .....	R. L. Norton	620 Marshall St.	Salt Lake City (C) ...	C. Louis Collins	215 Kearns Bldg.
<b>MARYLAND</b>			<b>VIRGINIA</b>		
Baltimore (C) .....	A. P. Peterson	515 Cathedral St.	Lynchburg (C) .....	J. L. Fennell	c-o Fennell & App
<b>MASSACHUSETTS</b>			Norfolk (L) .....	A. W. Cornick	200 Plum St.
Lowell (C) .....	George A. Ryan	79 Middle St.	Richmond (C) .....	E. M. Andrews	15 N. Twelfth Street
Haverhill (C) .....	H. W. Porter	14 West St.	<b>WASHINGTON</b>		
Malden (Medford, Ever-			Seattle (L) .....	P. L. Hoadley	Seaboard Building
ett and Melrose) (C)...	H. J. Walton	c/o Malden Electric Co.	Spokane (C) .....	William Stack	W. 1121 Cleveland St.
Springfield (C) .....	C. S. Foster	220 Dwight St.	<b>WEST VIRGINIA</b>		
Worcester (L) .....	John W. Coghlin	259 Main St.	Wheeling .....	Peter J. Erb	1414 Eoff St.
<b>MICHIGAN</b>			<b>WISCONSIN</b>		
Detroit (C) .....	N. J. Biddle	112 Madison Ave.	Green Bay (C) .....	V. E. Grebel	531 S. Broadway
Grand Rapids (C) .....	T. J. Haven	1118 Wealthy St., S. E.	Madison (C) .....	Carl J. Marsh	710 Beaver Bldg.
Kalamazoo .....	E. R. Hummel	1121 Seminary St.	Milwaukee (C) .....	E. H. Herzberg	1604 Wells Street
Saginaw (C) .....	E. T. Eastman	209 Brewers Arcade	Racine (C) .....	Joseph J. Small	1910 Linden Ave.
<b>MINNESOTA</b>			<b>CANADA</b>		
Duluth (L) .....	Morris Braden	c-o Minn. Pow'r & Lt. Co.	Montreal (C) .....	George C. L. Brassart	674 Girouard Ave.
Minneapolis (C) .....	W. I. Gray	209 Globe Building	Toronto (C) .....	J. A. McKay	302 Excelsior Life Bldg.
<b>MISSOURI</b>			Vancouver (C) .....	J. C. Reston	579 Howe St.
Kansas City (C) .....	Walter C. DeBold	City Bank Bldg.	Winnipeg (C) .....	Fred Ball	300 Princess St.
St. Louis					
Electragists' Ass'n (C)	W. F. Gerstner	120 No. Second St.			
Electric Employers' Association (C) .....	G. L. Gamp	Wainwright Bldg.			

(C) designates exclusively Contractor-Dealer organization.

(L) designates an Electrical League.

# NOVEMBER ACTIVITIES

## Industry Sales Conference Recognizes Contractor Status

**A**NNOUNCEMENT is authorized by the Electrical Industry Sales Conference of the following action taken on November 21, during its opening session at S. E. D. headquarters in New York City:

W. E. Sprackling was elected chairman of the conference, George E. Cullinan, vice chairman, and Kenneth A. McIntyre, secretary. An executive committee composed of the chairmen of the five delegations was named and includes: W. E. Sprackling, N. E. M. A.; G. E. Cullinan, E. S. J. A.; J. E. Davidson, N. E. L. A.; Joseph A. Fowler, A. E. I., and J. E. North, the leagues.

To approach its broad work in a definite way the conference adopted the following resolution:

That the Industry Sales Conference make as its first objective the development of a broad industry program for the promotion of more adequate house wiring through an organized national movement to re-wire the houses now connected to the power system of America where the installations provide inadequate facilities for the use of complete electrical equipment and also to

establish a higher standard of adequacy in the wiring of new houses.

That the conference recognizes that the present status of the electrical house wiring contractor will prove a fundamental factor in the carrying out of any program to promote house wiring and that careful study should be given to this problem in the hope that a way may be found to increase his effectiveness as a creative influence in the development of the electrical market.

Sub-committees composed of the following men were appointed and will report their recommendations to the next meeting of the conference in January, 1928:

Committee on adequate wiring and re-wiring: M. C. Huse, chairman, A. Lincoln Bush and R. Bourke Corcoran. Committee on the contractor-dealer situation: W. Creighton Peet, chairman, John L. Owen and Earl Whitehorse. Committee on national financing and local co-operation: H. T. Bussman, chairman, R. J. Russell and D. C. Birdsell. Committee on national advertising: J. E. Davidson, chairman, R. Bourke Corcoran and G. E. Cullinan. Committee on merchandising: J. G. Johanneson, chairman, E. W. Lloyd and J. L. Ray. Committee on S. E. D. co-operation: J. E. North, chairman, James A. Strong and H. A. Brooks.

## Secretaries Conference Discusses Credits

The first meeting of the Secretaries' Conference after its organization last summer at the St. Louis Electragist Convention was held at the Morrison Hotel in Chicago on November 14 and 15. Secretaries of local electrical contracting associations were present from a great many sections of the country.

Under the chairmanship of Edward Herzberg, Milwaukee, the conference considered many phases of local association activities with special emphasis on co-operation with the jobbers in establishing sound credit policies. The work of the Detroit and Maryland Electragists in this connection was reviewed as a basis for similar efforts in other localities.

It was the opinion of the conference that strict credits will accomplish the following results:

(1) Eliminate from the field the man who is not capable, financially or as a business man, of conducting his business at a profit.

(2) Reduce the mortality of contractors and develop a more stable group on which to center educational efforts.

(3) Reduce overhead by increasing turnover and reducing cost of collection.

(4) By more intelligent competition will bring a more profitable condition to all contractors, and a more progressive sales effort.

Other matters discussed were headquarters' activities, ways of building up a contractor's method of keeping costs,

electragists' estimating schools, industry relations, building friendly relations among contractors.

The next meeting is scheduled to be held at Kansas City on March 27.

## Nominations for Executive Committee

In accordance with provisions of the constitution of the Association of Electragists half the executive committeemen are elected each year to serve for two years. Elections will occur in the following divisions this year: Eastern, Southeastern, Great Lakes, Mountain and Western Canadian. The following candidates have been nominated for membership in the executive committee to fill the vacancies:

Eastern Division: A. C. Brueckmann.  
Southeastern Division: Charles E. James, M. A. Ladd.

Great Lakes Division: L. E. Mayer, John Kuhlemeyer.

Mountain Division: E. C. Headrick.  
Western Canadian Division: John H. Schumacher.

The candidates will be voted upon immediately and the results reported on December 10. The successful candidates will serve on the executive committee until January 1, 1930.

## Iowa Electragists Hold Two Day Convention

The largest gathering of electrical contractors and jobbers ever held in the State of Iowa met October 17 in Des Moines for a two-day convention and listened to addresses on various angles of the problems of the industry. E. N. Peak of Marshalltown, Iowa, was re-elected president of the Iowa Association of Electragists; H. J. Ryan, Sioux City, vice president, and J. R. Payton, Des Moines, secretary and treasurer. Committeemen were appointed as follows:

Directors and Executive Committee—W. H. Best, Ames; James G. Bradley, Council Bluffs; Robert Honegger, Des Moines; C. F. Nagle, Waterloo; Wes Clewell, Dubuque; Charles Abell, Keokuk; M. J. Frazier, Burlington; J. F. Polling, Ottumwa; H. J. Robertson, Cedar Rapids; Otto Essinger, Fort Dodge; C. J. Smith, Mason City; F. H. Abbett, Sioux City; Victor Thomas, Des Moines. Legislative Committee—Robert Honegger, chairman, Des Moines; F. H. Deemer, Des Moines; W. H.



Rich, Des Moines. Trade Policy—Wes Clewell, chairman, Dubuque; J. F. Polling, Ottumwa; W. T. Fowler, Cedar Rapids. Finance and Ways and Means Committee—C. F. Nagle, chairman, Waterloo; W. H. Best, Ames; Robert Cole, Waterloo. Membership Committee—Vic Thomas, Chairman, Des Moines; F. H. Abbett, Sioux City; Otto Essinger, Fort Dodge, and W. T. Fowler, Cedar Rapids, chairman of Cedar Rapids convention.

The program included addresses by H. C. Downing, state chairman of electrical jobbers of Iowa; C. S. Macy, president of Iowa section of N. E. L. A.; E. H. Aberdeen of Westinghouse Electric and Manufacturing Company; H. E. Stedman, chief electrical inspector of Des Moines; E. A. Artz, past president of the Iowa association; M. D. Williams, General Electric Company, and reports by the officers and committees.

E. N. Peak, president of the Iowa Electragist Association, reviewing the accomplishments of his organization during the past year, believes that organization and cooperation have already produced good results. "Contractor-dealers of Iowa," he says, "are closer together and working on a better basis than they have at any other time; local organizations are better organized and co-operation of local organizations is on a better working plan than it has been before. To illustrate, contractors in the same city having plenty of work have been passing work to others who were not so busy. Others who have had preference or priority on work are being co-operated with in place of past practice which we do not care to recall. Contractor-dealers of different towns are co-operating and I know of instances where contractors of one city have notified those of another city of work that was coming up and asking them to figure it; of others where contractors of one town who have been unable to do work in their own town have brought contractors from another and assisted them in ob-

taining the work and on a time and material basis at that. I know of a number of other cases where contractors have had work that they have been unable to handle with their organization who have called in contractors from some other town to assist them, where in the past this work had been sent to some distant point.

### Discussion on Apprenticeship

Alfred J. Hixon, president of the Hixon Electric Company and chairman of the apprenticeship commission of the Boston Electric Contractors' Association, addressed a meeting of the new England Vocational Guidance Association on October 25 on the subject "Opportunities for Beginners in Electrical Work."

### Joint Committee on Merchandising

A joint committee to study the competitive situation between central stations and independent appliance dealers in the marketing of electrical goods and to evolve standards of practice in merchandising was formed at the Inter-Association Merchandising Conference. The members of the joint committee include secretaries of the following associations: Association of Electragists, Retail Dry Goods Association, National Retail Hardware Association, Retail Furniture Association, Hardware Jobbers' Association, and Retail Druggists Association, and the chairman and representatives of the merchandising committee of the National Electric Light Association.

The Inter-Association Merchandising Conference discussed the existing merchandising situation from the angles of: Premiums, terms, cut prices, quality de-

vices, low initial payments and long terms and the sale of non-electric merchandise by central stations. Howard T. Sands, president of the National Electric Light Association, welcomed the members of the conference.

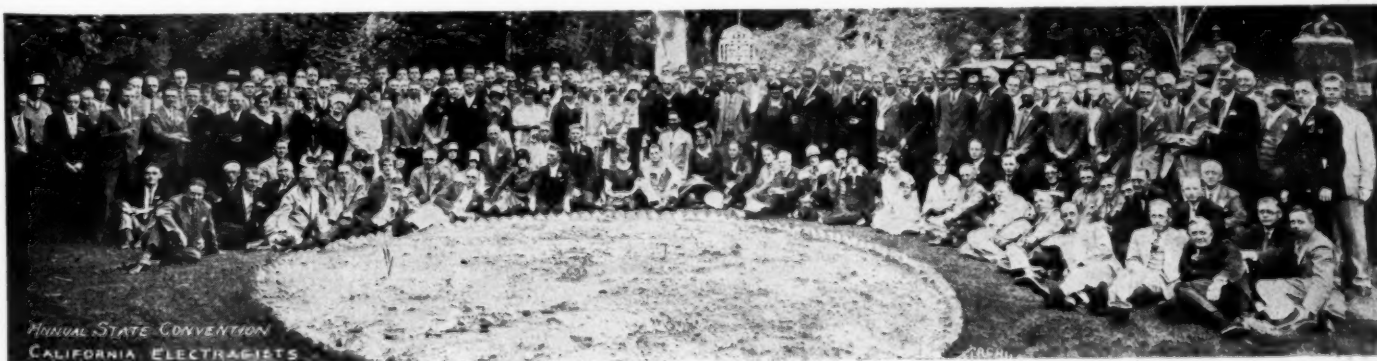
### Indiana Electragists Elect Officers

G. T. Howard of the Althoff-Howard Electric Company, Evansville, was elected president of the Indiana Electragists at their annual meeting held at the Lincoln Hotel, Indianapolis, on November 16. W. A. Nolting of Indianapolis and Frank Argast of the Hatfield Electric Company, also of Indianapolis, were elected vice president and secretary, respectively.

The meeting was presided over by the retiring president, F. O. Broyles of Marion. Two interesting papers on "Time and Material Billing" by C. W. Nunn of Evansville, and "Radio Retailing" by Frank Argast preceded a talk by S. B. Williams, editor of THE ELECTRAGIST, on the "Activities of the A. E. I."

### New Director for Jobbers' Association

Granville P. Rogers, managing director, Artistic Lighting Equipment Association, has been appointed managing director of the Electric Supply Jobbers' Association, the office of which, now in Chicago, will soon be moved to New York. Franklin Overbach, now secretary of the Jobbers' Association, will continue with the organization as treasurer. Mr. Rogers will continue his duties with the Artistic Lighting Equipment Association, which is in the midst of an intensive campaign for new members.



California Electragists Who Met in Riverside, California, October 14-15, 1927

### Data on Industrial Lighting

A loose-leaf binder, with data on industrial lighting, heating and power, is being distributed to local plant managers, superintendents and engineers by the Electrical League of the Niagara Frontier. From time to time, according to the plans, additional data will be issued in the form of pamphlets which may be inserted in the binder. Among the items covered so far are: Data on factory lighting, the use of electric heat in manufacturing, tables on the recommended intensity of illumination in different industrial situations, floodlighting, ventilation and air purification, lighting surveys for industrial plants, industrial ovens, table of illumination values.

### Jobber Awarded Medal

O. Fred Rost of the Newark Electrical Supply Company, Newark, N. J., was awarded the jobbers' medal and purse for 1927 under the James H. McGraw Award with the following citation:

O. Fred Rost, president of the Newark Electrical Supply Company, Newark, N. J., has for years been prominent in progressive thought in the field of distribution in the electrical industry and an active member of the Electrical Supply Jobbers' Association. In the course of his committee work he has

on several occasions made constructive analytical studies of conditions confronting the jobber that have been of material benefit. More recently he conceived the idea of instituting organized instruction for the jobbers' salesmen in the fundamental problems of the electrical contractor and dealer that more practical assistance may be given to these essential customers in the improvement of their economic position. At the request of the Association he developed a correspondence course, enrolled some two thousand salesmen throughout the country, and as a result of the most persistent and constructive effort, entailing an exhaustive amount of personal work, has carried through a gratifying proportion of them to completion of the course.

In recognition of this constructive contribution to the advancement of the jobbing branch of the electrical industry the judges have awarded to Mr. Rost the Jobbers' Medal and Purse for 1927 given under the James H. McGraw Award.

### Campaign for Better Show Window Lighting

A campaign has started in Camden and nearby Southern New Jersey cities for better show window lighting by the Electric League of South Jersey under the direction of G. R. Conover, secretary. The campaign began with a meeting in Camden November 21 where J. A. Hoeveler, illuminating engineer of the Pittsburgh Reflector Company, gave an address on show window lighting, reporting the results of tests he has conducted in chain stores. "People, like

moths, are attracted by light," Mr. Hoeveler stated.

Under the plan of the show window lighting campaign merchants in the territory covered will have the services of lighting engineers of the central station without cost who will make a modern lighting layout for the store and windows. The wiring will be turned over to contractors.

### Holiday Lighting Contest

A Christmas Lighting contest is being held in Youngstown, Ohio, in connection with a local newspaper. Prizes will be awarded for the most original and artistic residence and business installation in different sections of the city. The following have been appointed from the Youngstown Electrical League to take charge of the contest: W. J. Addis, W. A. Maloney and E. J. Beil.

### Lake County Meeting

Speeches by Victor H. Towsley, chief electrical inspector, Chicago; L. E. Mayer, member executive committee, A. E. I., and Samuel Adams Chase, Westinghouse Electric and Manufacturing Company, featured the second annual banquet and meeting of the Lake and Porter County, Indiana, Electragists Association on October 27. Leon J. Granger, president of the association, was toastmaster. Group singing of the songs which won the Harmony Cup at the 1927 Electragist Convention in St. Louis, formed part of the program. More than 150 contractors and their wives were present.

### Manufacturers Recommend Grounding Policy

A grounding policy for electrical manufacturers was recommended by the Committee on Grounding of the National Electrical Manufacturers' Association at its meeting on November 1. The adoption of the following policy was recommended:

1. That all central station supply circuits be grounded as now required in the National Electrical Code.
2. That in general stationary non-current carrying parts in industrial and domestic locations be grounded.
3. That in industrial plants other than the office the metal non-current

## Maryland Electragists Banquet

**S**PEAKERS at the annual banquet of the Maryland Division, Association of Electragists, International, were: Dr. David E. Weglein, superintendent of education, who spoke on "The Electrical Vocational School;" J. Thomas Lyons, "Personality in Business;" Joseph A. O'Brien, "Safety in Grounding Electrical Equipment;" Henry C.

Louis, "Some Technical Aspects of Grounding;" Arthur P. Peterson, secretary of the group, "The Association at Work," and Herbert Metz of the Graybar Electric Company, "The Importance of the Electragist." A. C. Brueckmann, executive committeeman, A. E. I., presided. The picture shows the 115 association members who were present.





carrying parts of all portable equipment be grounded. In other locations the metal non-current carrying parts of portable equipment operating at 150 volts and above (to ground) be grounded. In general, when operating below 150 volts, they need not be grounded.

4. That the use of any current carrying circuit conductor for the grounding of portable or fixed equipment or devices is undesirable and unsafe.

5. That a separate wire, conduit, armor, or other suitable conductor may be used for the grounding conductor.

### Code Interpretation to Prevent Misunderstandings

In an effort to prevent misunderstandings between contractors and inspectors the wiring rules and code committee of the Electrical Extension Bureau of Detroit will hold regular meetings to agree on interpretations and iron out differences. These interpretations will be passed on to the interested groups. The first meeting was held October 27.

### Problems Facing Code Makers

"It may be necessary to do something," A. R. Small of the National Fire Protection Association declares, "about the number of conductors that can be put into a pull box. In some installations a master pull box is used and a large number of wires are brought into contact with each other, creating a hazardous situation. If a short circuit should occur and start a fire, as recently happened in New York, it might burn away the insulation on all the wires with the result that all the lights in the building would be put out of commission, including the emergency and exit lights."

A similar problem, according to Mr. Small, is whether or not there should be a limitation on the number of splices permitted in convenience outlet or switch boxes. "Some people are saying that no splices at all should be permitted and this may come up before Article 2 or Article 5 committees, which are to report about the first of next year."

### Date Set for 1928 Electragist Convention

The Stevens Hotel, Chicago, Ill., will be the headquarters for the 1928 convention of the Association of Electra-

### "Optiphosis"

"Optiphosis" is a new word added to the language by Curtis Lighting, Inc., Chicago, Ill., which means "defective vision due to the misuse of light." The word was introduced at a meeting of the Illuminating Engineering Society on October 12 where a representative of the Curtis company said: "Damage done by the brutal brilliance of direct light is creating optiphosis among the millions."

gists, Int., and the week of August 6 is the date set. The Stevens Hotel is the largest hotel in the world, with 3,000 rooms, sufficient space to take care of all the delegates with exactly the type of reservation each one wants. There are seven dining rooms where meals may be obtained in every range of price and character of service.

A manufacturers' exhibition will be held in the grand ballroom of the hotel, which is large enough for more than 1,000 people to attend the meetings. The Stevens Hotel is on Michigan Boulevard, overlooking the park and Lake Michigan, and it is just at the edge of the famous Loop shopping district. The following form the local committee in charge of the convention arrangements: L. E. Mayer, member executive committee, A. E. I.; J. Walter Collins, secretary, Electrical Contractors' Association; J. Bourke Corcoran, manager, Electric Association, and William McGuineas, president, Electrical Contractors' Association.

### Madison Contractors Discuss Cooperation

Cooperation was the keynote of the Madison, Wis., Electrical Contractor-Dealers' Association meeting on October 26 at the Kilowatt Club and the main speaker, Laurence W. Davis, general manager of the Association of Electragists, discussed this point. Mr. Davis stressed the great economic value of such organizations as the Madison association which made it possible for its members to get the benefit of years of experience without learning it by themselves through hard knocks. He recommended cooperation between contractors and jobbers, mentioning the duty of each to the other. Jobbers

should limit credit to men who know the facts about their business, he said, and for their own protection jobbers should require a financial statement just as bankers do. Contractors, on the other hand, have certain duties to jobbers, such as buying merchandise from established suppliers, as close to home as possible, avoiding the cut price, unethical dealer; not scattering purchases but sticking to one or two jobbers establishing a good credit rating with them.

"Business is dropping off in the building industry," according to Mr. Davis, "and there is a great desire to cut prices at such times. Cutting prices does not create business but destroys it. We should stiffen our backbone at such times and maintain prices."

A. J. Endres, president of the association, called the meeting to order. L. W. Burch introduced the speaker of the evening. Nearly every member was present.

### Inspectors and Contractors Meet Together

Contractors in Detroit met October 6 with members of the Michigan Association of Electrical Inspectors in a joint assembly. H. S. Lofquist, new secretary-manager of the Electrical Extension Bureau, was introduced by Earl A. Anderson, president. Earl Whitehorne of *Electrical World* spoke on the need for concerted effort on the part of the entire electrical industry in developing its market.

### Industrial Lighting Campaign Underway

A campaign for the improvement of commercial and industrial lighting is gathering force in Minneapolis and St. Paul as an aftermath of the industrial lighting conference recently held at the University of Minnesota. A test campaign is being started in one section of the city. Demonstration installations are being made, direct by mail publicity calling attention to these installations will be sent out and personal follow-up calls on those showing interest will be made. It is intended to make this sectional campaign a test of a method of attack which will be used throughout the Twin Cities during the next year or more.

The first step in the campaign was the industrial lighting conference which was in charge of E. W. Johnson, professor

of illuminating engineering, University of Minnesota. The conference lasted four days, with an average attendance of seventy-five per meeting, and talks were given by illuminating engineers of the National Lamp Works, Westinghouse Lamp Company, and Edison Lamp Works, covering such subjects as fundamentals of illumination, illumination calculation, lighting equipment and its characteristics, show window and store lighting, industrial lighting, special lighting for schools, banks and offices, illuminating service, sign lighting and sales methods.

### Unethical Jobber Practices

Five jobber practices were labeled unethical by L. W. Davis, manager, A. E. I., in a speech before the Electric League of Pittsburgh: 1. Careless classification of customers. The proper classification, Mr. Davis urged, should be national syndicates, large industrials and contractor-dealers through whom all purchases of smaller industrials and individuals should be handled. 2. Failure to protect the contractor-dealer. 3. Setting up new men in the contracting business. 4. Selling discounts instead of distributing service. 5. Retailing to the public.

### New Rules for Wiring in Cleaning Establishments

The California Association of Electrical Inspectors has issued new rules for wiring installations in clothes cleaning establishments in that state in accordance with the act to reduce fire hazards passed at the last session of the California State Legislature. A copy of the rules may be obtained from C. W. Mitchell, secretary, 914 Merchants Exchange Building, San Francisco, Cal. The new rules relating to electrical installations follow:

Rule 32. It shall be unlawful for any person, firm or corporation to use, or to cause or permit to be used, any artificial light of any kind other than electricity in any spotting and sponging establishment or clothes cleaning establishment; or to use, or to cause or permit to be used, any electric lamp in any hazardous room, unless each such lamp is enclosed in a tight fitting vaporproof globe.

Rule 33. All electric wiring in any hazardous building of any clothes cleaning establishment shall be enclosed in continuous threaded conduit, and all fittings shall be vaporproof. All switches shall be vaporproof and shall be packed with solid cup grease and be located outside of said building.

Rule 35. All washers, extractors, steam

tumblers, stills, filters, clarifiers and dust wheels when same are used for the purpose of drying or deodorizing purposes, or other similar machines, appliances or devices, shall be permanently grounded in a manner approved by the electrical safety orders issued by the Industrial Accident Commission of the State of California.

Rule 36. Every electric motor used in connection with a clothes cleaning establishment or a spotting and sponging establishment shall be located outside of any hazardous room.

Rule 37. Red pilot lights must be installed and maintained at all times on all electric iron circuits.

Rule 38. Fire and heat resistant stands shall be installed and maintained at all times and all irons kept thereon.

### Red Seal Applications Double

A gain of 100 percent in number of Red Seal applications over the same period last year was reported by the Electrical League of Minneapolis on November 1. The average number of outlets per Red Seal job is given as 78, with many running much higher than that. During the month E. Seestrom handled four Red Seal jobs, E. R. Delp four, J. N. Bruner three and there was a total of 33 Red Seal jobs in the Minneapolis territory.

## Tennessee Contractors Meet in Memphis

OVER one hundred contractors and dealers from Memphis, Chattanooga, Nashville, Knoxville and cities in Mississippi and Arkansas attended the sixteenth annual convention in Memphis October 24 and 25 and heard addresses by W. R. Herstein on "The Distributor's Function;" J. J. Brennan, on "Industry Relations;" B. H. Martin, on "Dealer-Central Station Cooperation;" D. J. Deaderick, on "The Electrical Contractor, Yesterday, Today, Tomorrow;" J. A. Fowler, on "Rewiring and Refixturing Campaigns;" W. A. Jewell, on "Local Association Activities," and W. A. Shutt, on "How the Journeyman Can Sell More Merchandise." R. L. Clift, president, Tennessee Association of Electragists, gave the address of welcome, to which J. T. Shannon, vice president, responded.

The following officers were elected for the coming year: J. T. Shannon, president; William A. Jewell, first vice president; L. P. Self, second vice president; A. J. Thompson, third vice president, and J. A. Fowler, secretary and treasurer. The 1928 meeting will be held in Nashville during October or No-

### New Uses for Floodlighting

There are several new uses for floodlighting the exteriors of buildings for advertising purposes, according to J. A. Hoeveler, chief engineer of the Pittsburgh Reflector Company, in a talk before the New York section of the Illuminating Engineering Society November 10. "Gas filling stations," Mr. Hoeveler said, "can well be floodlighted because they must be seen at night for considerable distances. Cars go by at a merry clip and unless the gas station is very prominent it will lose some business. When the owners of a new building in a small middle western city wanted to sell bonds on the building they floodlighted it, making it stand out conspicuously and putting it definitely into the consciousness of the people of the city in much less time than if it had not been lighted."

Mr. Hoeveler showed slides of various kinds of buildings which have been floodlighted with success, including laundries, houses in new real estate developments, canning factories, statues and public buildings.

vember, the date to be selected later.

The social program included a golf tournament, a banquet and a cabaret under the direction of the Memphis electrical contractors' association.

The committees included: R. L. Clift, general chairman; J. A. Fowler, secretary; hotel, Kenneth Hill, chairman, Charles O. Davis, H. E. Wolf and William E. Green; reception and registration, Robert C. Motley, chairman, Thomas Kramer, William A. Nutzell and Lew Tisdale; automobiles, C. O. McCrory, chairman, E. W. Gray, Harry Lickey and John S. Motley; jobbers' luncheon, C. J. Watson, Jr., chairman, O. B. Chandler and W. F. Cleveland; golf, H. G. Street, chairman, C. J. Watson, Jr., and W. R. Herstein; electric league dinner, J. J. Brennan, chairman, Harry Thomas, G. W. Dichtel and Horace Johnson; cabaret, Kenneth Hill, chairman, O. B. Chandler and B. T. Dawkins; contractors' association luncheon, B. T. Dawkins, chairman, A. J. Thompson, J. Roy Wagner and Joseph Dattilo; refreshments, C. B. Rutledge, chairman, M. B. Menne, Frank Flournoy and L. B. Rosebrough.



### Red Seal Advertising

Listing the names of builders of Red Seal houses in local league advertising is a new trend in Red Seal advertising, according to the Society of Electrical Development. In a recent bulletin the Detroit plan of listing builders is described with the comment: "Detroit seems to find it easy to sell the builder on whole blocks of houses as is evidenced by the fact that one builder alone was awarded Red Seals on three different blocks of houses, containing 23, 18 and 7 houses, respectively." The Rochester League sends letters to builders of speculative houses about ten days before its advertisement is to appear. The builders are asked to list on the return postcard the houses they have wired Red Seal which are on the market and these are listed in the League's advertisement. The League members feel that this plan keeps the Red Seal before the public and at the same time makes a direct appeal to the builder.

The architect is featured in a new series of advertisements of the Alabama Electrical League and those who recommend the Red Seal plan to their clients are listed. Tying in the builder with Red Seal advertising is accomplished in Denver by displaying before Red Seal bungalows the Red Seal poster. In a double page advertisement of these homes the builder featured adequate wiring by saying: "Other added features are Red Seal wiring with fifty-eight outlets for electric equipment."

### New League Officers

The officers elected at the recent annual meeting of the Alabama Electrical League are:

President, A. B. Collins; first vice president, D. B. Clayton; second vice president, W. W. Kennedy; third vice president, R. T. Brooke; secretary, W. C. Allen; treasurer, N. H. Hawkins. Members of the executive committee with officers are as follows: Manufacturers' representative, John Gelzer; central station representative, J. S. Sutherland; jobbers' representative, John S. Shaw; contractors' representative, C. S. Dyer; dealers' representative, S. P. Smith; fixture dealers' representative, J. R. Boggs; representative at large, A. P. Bagby.

The officers elected for the Birmingham chapter of the Alabama Electrical League are:

President, John S. Shaw; first vice president, W. W. Kennedy; secretary, W. C. Allen; treasurer, N. H. Hawkins; executive committee, officers and the following: manufacturers' representative, R. T. Brooke; central station representative, A. B. Collins; jobbers' representative, H. W. Matthews; contractors' representative, D. B. Clayton; dealers' representative, A. P. Bagby; fixture dealers' representative, J. R. Boggs; representative at large, Harry Roberts.

### Women's Electric Association

Women connected with or employed by any person, firm, company or institution engaged in the electrical industry are eligible for membership in the newly-formed women's division of the Chicago Electric Association. Meetings are held monthly for the purpose of "bringing together women in all branches of the electrical industry for the advancement of the industry through a better understanding of the service rendered by electricity, and dissemination of that knowledge, and for the promotion of fellowship through participation in a common cause." The membership is divided into eight groups, in accordance with the branch of the industry with which the women are connected, as follows: Contractor-dealer, electrical contractor, lighting equipment, manufacturer, member-at-large, public utility, radio, supply jobber.

Helen Norris of the Commonwealth Edison Company is chairman and Alva M. Larson is secretary of the association.

### Committee for California Convention

H. W. Barnes and C. J. Geisbush of the California Electragists and H. H. Courtright of the Valley Electrical Supply Company have been appointed a committee to organize next year's state convention.

### List of Inspected Electrical Appliances

Twice a year a list of inspected electrical appliances is published by the National Board of Underwriters. The list published under date of October, 1927, is a supplement to the annual list published in April. Copies may be obtained from the National Board of

Fire Underwriters, 207 E. Ohio Street, Chicago, Ill.

### Thin Wall Conduit

The Elyria Iron and Steel Company has applied for recognition in the National Electrical Code of a "thin wall conduit" which has 19 gauge walls for the 1/2 in. tube; 18 gauge walls for the 3/4 in. tube, and 17 gauge walls for the 1 in. tube. The wall thickness is less than half the thickness of the walls of the present standard rigid conduit; for instance, on the 1 in. tubing the walls are .056 in. thick, while the walls of the present standard 1 in. rigid conduit are .133 in. thick.

In accordance with the usual procedure the Article 5 Committee (wiring methods) of the electrical committee of the National Fire Protection Association was requested on August 1, 1927, to consider the application. The members of the article committee were furnished with copies of a fact-finding report by Underwriters' Laboratories, prepared in accordance with Case 3 of "the procedure for handling new developments." Upon request of the article committee, late in October, a technical sub-committee was appointed to study the conduit and report to the article committee by December 1, 1927.

The members of this sub-committee are: Alexander Maxwell, N. E. L. A., chairman; R. E. Argersinger of Stone & Webster; H. L. Huber of the American Telephone and Telegraph Company; W. W. Johnston, Board of Fire Underwriters, Allegheny County Pennsylvania; L. E. Kern, American Institute of Architects; W. J. Mahan, City Electrical Inspector, New Haven, Conn.; W. Creighton Peet, executive committee-man, A. E. I.; W. H. Pierson, Underwriters' Association of the Middle Department, and George Sheridan, Department of Water Supply, Gas and Electricity, New York City.

The article committee will give consideration to the report of this sub-committee and in turn report its findings for formal action by the electrical committee at its meeting, February 14 to 17, 1928.

### Van Aernam Leaves Pittsburgh

The board of directors of the Electric League of Pittsburgh announce it has accepted with regret the resignation

of J. H. Van Aernam as manager of the league. Mr. Van Aernam leaves Pittsburgh to become merchandising manager of the New York Power and Light Corporation at Albany, N. Y. George T. Barrows, well known Pennsylvania contractor, has been appointed to succeed Mr. Van Aernam.

### Miniature Electric Home

The convenience of Red Seal wiring and the advantage of good home lighting have been demonstrated at several electrical shows by the use of a miniature electric home. It caused considerable attention at the Providence electrical show and the show in Syracuse and was recently exhibited at the Hudson Valley League dinner in Poughkeepsie.

### OBITUARIES

#### Fred W. Korff

Fred W. Korff, Lockport, N. Y., died October 29 at his home of heart disease. Mr. Korff was born June 11, 1870, in Lockport and was one of the pioneers in electricity in his city. He constructed his own dynamo to light his electrical shop and built all his own electrical machinery.

#### W. E. Prosser

W. E. Prosser, formerly secretary-manager of the Electric League of the Niagara Frontier, died August 6, 1927. At a recent meeting of the general committee of the league the following resolution was passed:

"Whereas, William E. Prosser as manager-secretary of the Electric League of the Niagara Frontier during its formative period, by his tact, intelligent energy and kindly personality rendered a service of great value to the League, thereby not only winning the gratitude of his associates, but their respect and affectionate regard; now, therefore, be it Resolved, That we, the officers and members of the Board of Directors of the League, in meeting assembled, herewith express our sorrow; and be it further Resolved, That a page of the minutes of the records of this Association be set apart in honor of his memory, and that a duly engrossed copy of these resolutions be forwarded to his bereaved family."

#### Charles G. Ricklefs

Charles G. Ricklefs, vice president of the Beardslee Chandelier Manufacturing Company, died November 6. Mr. Ricklefs was one of the pioneers of the lighting industry, entering the illumination field as a young man selling oil lamps and gas fixtures. Forty years ago he together with David J. Braun established the David J. Braun Company, one of the earliest manufacturers of electric lighting equipment. This was consolidated in 1915 with the Beardslee Chandelier Manufacturing Company and Mr. Ricklefs became a member of the board of directors and vice president of the company.

#### Leo Spangenberg

Leo Spangenberg, electrical contractor, died in his home in New Orleans November 6. Mr. Spangenberg was born in Pennsylvania in 1878. He engaged in the electrical business in that state for a number of years and then moved to New Orleans, where he conducted a contracting business for fifteen

years, specializing in the installation of private interoffice communicating telephones and radio. He is survived by his widow and two married daughters.

### News Notes Concerning Contractor-Dealers

A new electrical store, known as the Owensboro Electric Company, has been opened in Owensboro, Ky., by O. W. Smith and B. M. Smith, under the management of James W. Smith, who has for several years been in the electrical business in Miami, Fla.

The growth of the business of the Kreckman Electric Company, Rochester, N. Y., has necessitated the opening of a new store where electrical appliances and radio will be sold. This is the second move N. A. Kreckman, owner of the business, has been forced to make because of increased business which necessitated larger space.

Clyde Shimonek of Pawhuska, Okla., has purchased the Einch & Jones Plumbing Shop of Bartlesville and will open a new electrical and plumbing store in Pawhuska. A complete line of electrical fixtures and appliances will be carried.

A fire in Gowanda, N. Y., which burned through a block of stores and for a time threatened the town hall and the village jail, destroyed Kimbrough's Electric Shop, with a loss estimated at \$25,000. Plans for rebuilding the store have not been completed.

The Henningsen Engineering Company of Omaha, Neb., have obtained the contract for installing 145 electrolier posts for the new street lighting installation in the Columbus, Neb., business district.

A. B. Blake of Wilmington, N. C., installed the wiring system and electric fixtures in the new model "Home Beautiful" in the Forest Hills section of Wilmington.

The Alterman-Cude Electric Company has been formed in San Antonio, Texas, as a result of the formation of a partnership of Guy Cude and Nathan Alterman, formerly owner of the Alterman Electric Company.

## New Electragists

The following contractor-dealers have made application and been accepted into the A. E. I. since the publication of the last list in the November issue:

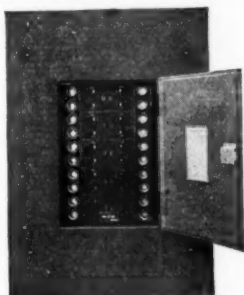
CALIFORNIA	ILLINOIS	OKLAHOMA
San Jose: King-Russell Elec. Co.	Chicago: J. Livingston & Co. Post Electric Co.	Oklahoma City: Wetherbee Elec. Co.
FLORIDA	MASSACHUSETTS	PENNSYLVANIA
Panama City: Wm. L. Brewton (Assoc.)	Boston: J. Livingston & Co.	Pittsburgh: West Penn Power Co. (Assoc.)
GEORGIA	MICHIGAN	
Atlanta: Cleveland-Browning Co.	Detroit: J. Livingston & Co.	



# News of the Manufacturers

## Panel Board

A new type single fused unit panelboard is announced by the Trumbull Electric Mfg. Co., Plainville, Conn. These panelboards have lugs in the mains and tumbler switches and



plug fuses in the branches. Box sizes have been changed so that 4 in. wiring gutters are provided on all sizes. Boxes are now 4 3/8 in. deep. The new boxes are listed in a new bulletin, No. 7.

## Conduit

Central Tube Company, Pittsburgh, Pa., announces a new conduit to be manufactured under the name "Whitenred." The conduit is first electro-galvanized and then dipped in a red compound which not only supplies the inside finish and the exterior finish but is acid-proof and also conductive so that a definite ground can be obtained, according to the manufacturer, without removal of the coating. It is stated that the coating is not affected by bending and cannot be scraped off without removing some of the zinc. Couplings and threads are protected in the dipping process.

## Receptacles

The Bryant Electric Company, Bridgeport, Conn., has issued a new catalog describing new "Spartan" receptacles with round metal



covers for mounting directly on 3 1/4-in. and 4-in. outlet boxes. The illustration shows a duplex composition receptacle, side wired, with the new positioning feature. The faces of the receptacles are cupped and a raised rib of composition is molded across the cup between the slots. The covers are of steel with a sprayed black lacquer finish.

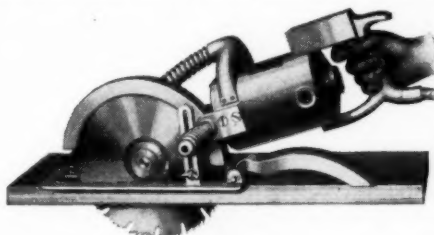
## Push Button Starters

The Allen-Bradley Company, Milwaukee, Wis., has placed on the market a line of A. C. and D. C. push button starters ranging from 1/4 h.p. to 10 h.p., 220 volts D. C. and 15 h.p.,

550 volts A. C., giving protection to operator, motor and machinery. The covers on all starters swing to the side, being convenient for inspection and can be locked against tampering and injury to any employee not authorized to open the box. The A. C. starters give protection against overload, no-voltage and single phase operation. An outside reset lever makes resetting of inducto-therm relays convenient. The D. C. starters give positive starting, no-voltage and overload protection. A special graphite compression resistor gives smooth stepless acceleration until all resistance is cut out at full speed of the motor. Patented resisto-therm relays give accurate overload protection. A. C. and D. C. switches of similar rating have the same external dimensions and are made in three forms. The manufacturer says that Form 1 has the "start" and "stop" push buttons mounted in the cover. Form 2 is designed for operation with outside push button, float switch, etc. Form 3 has a lever on the cover giving two-way control, manual and automatic. Arc shields are used on all switches and magnetic blow-outs on the larger sizes of both A. C. and D. C. switches.

## Electric Saw

Wodack Electric Tool Corp., Chicago, Ill., has placed on the market a new portable electric hand saw which saws joists, 4 by 4's, planks, stair-stringers, etc. The saw is equipped with a sawdust blower which is designed to keep the sawing line free from sawdust and visible at all times; the blade is



mounted on a moulded rubber bushing which reduces shocks; the entire motor body tilts up or down so the operator can stand erect in sawing in any position. The switch is of the trigger type which operates with the forefinger, and there is a safety guard which is designed to protect the operator if the saw should drop against the legs.

## Exterior Lighting Fixtures

Murlin Manufacturing Company, Philadelphia, Pa., has put on the market a new line of cast bronze exterior lanterns, designed to match various types of architecture and different sizes of buildings. Detailed scale drawings of each lantern have been printed on separate sheets which can be mailed by the dealer to prospects with quotations. One lantern, No. 1750, is in Gothic style, 28 1/2 in. high with an extension of 9 in. to the center of the cage, and its octagonal shape is adapted for churches, schools, apartments, or commercial buildings of Gothic architecture. This

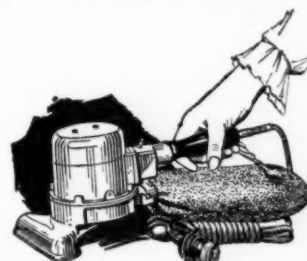
is a wall bracket lantern and is furnished either hanging or upright. Nos. 1751 and 1752 are iron age Renaissance, with Spanish or Italian characteristics. The former are made in three sizes and are suitable for different sizes of buildings. No. 1752 is made in two sizes for domestic and apartment house installations.

## Electric Hoists

The Northern Engineering Works, Detroit, Mich., has added to their line of cranes and hoists a new series called "Hi-Lift" hoists. The hoist is of compact design with an especially high hook lift which is adaptable to plants with low ceilings.

## Portable Electric Cleaner

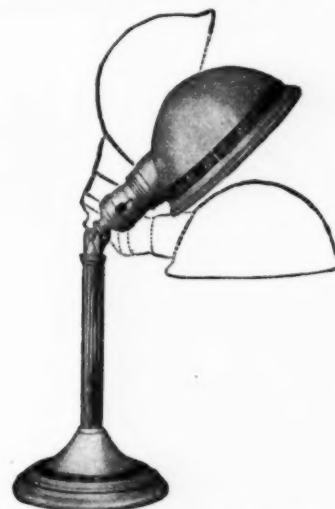
The Galvin Electric Manufacturing Company, St. Louis, Mo., is selling a new port-



able electric cleaner for use in cleaning clothes, billiard tables, divans, curtains, lamp shades, draperies, suits, upholstery of cars, etc. It weighs about 4 lbs.

## Adjustable Lamps

The Greist Manufacturing Company, New Haven, Conn., announces the introduction of a new model adjustable lamp with various



colored Karolith shades. The new material, Karolith, is a colorful chemical product, which may be either translucent or opaque. Lamps made of this product can be highly polished; they are lighter than glass but not so fragile.

### Plug Protector

The Ericson Manufacturing Company, Cleveland, Ohio, has placed on sale a new plug protector designed to prevent breakage of attachment plugs on extension cords where the plugs are apt to be jerked out of the out-



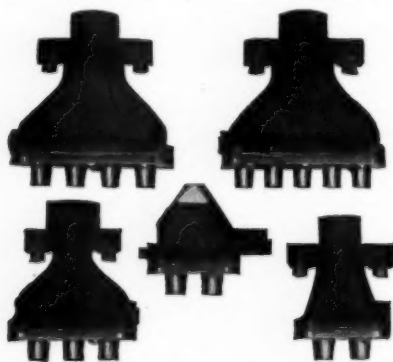
let and bumped along the floor or against other objects. The C. & E. plug protector is made of rubber compound which is oil resisting. Another type of protector is made with a long handle which protects the flexible cord of irons, toasters and other portable appliances. The handle is flexible.

### Theft Proof Lamps

The General Electric Company is beginning to manufacture Mazda lamps with Kulp theft proof bases which go into the standard socket. The screw shell is held to the base by a tiny pin which is sheared off when the lamp bulb is given an extra twist after contact is made, and thereafter it cannot be removed until burned out and broken open, according to a General Electric announcement. The lamp base itself contains the theft proof feature, which is useful for railroads, factories, mills and other industrial concerns.

### Low Voltage Terminal

A new type of low voltage terminal for indoor or station service has been recently placed on the market by the Standard Underground Cable Co., Pittsburgh, Pa. They are designed for mounting on the end of pipe conduit or connected to the sheath of a lead covered cable by means of stuffing box



gland, inner seal or plumbers wiped joint. They are made of cast iron or brass with bakelite insulating top and conductor outlets, the joints being equipped with liberal gaskets. These terminals are adapted for terminating low voltage power or control cables or similar low potential conductors.

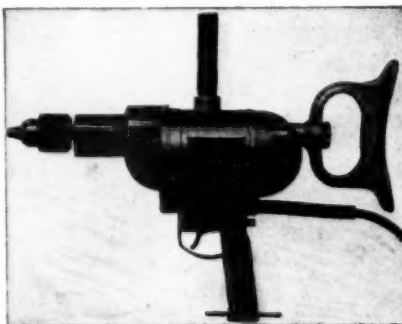
### Floodlight

Pittsburgh Reflector Company, Pittsburgh, Pa., recently brought out a new floodlight known as "Pittsburgh Floodlight FL-300," which is a complete revision of the former light issued under that number. It is designed for mounting within 10 to 20 ft. of the surface to be illuminated. In short range

floodlighting the fields of light from individual units will not overlap as much as in long and intermediate range lighting, and for that reason the reflector is fluted in an effort to smooth out the field of light. The cover glass is either clear or stippled, and is cemented into the frame with waterproof cement. The cover hinges against asbestos rope gasket, under pressure applied by wing nuts. All moving parts are of dissimilar metals to prevent their freezing together because of corrosion. The cowl, of cast iron, is fitted with a porcelain bushing for the entrance of the conductors. When the lamp is at focal center the maximum concentration is secured and the width of the important part of the beam is 30 deg. When the lamp is  $\frac{1}{2}$  in. back of the focal center the maximum spread is secured, and the width of the beam is about 50 deg.

### Portable Electric Drills

The Miller Falls Company, Miller Falls, Mass., is manufacturing two new electric portable drills which operate on either D. C. or single phase A. C. up to 60 cycles. The drills have heat treated alloy steel gears, ball thrust on spindle, ball bearing motor shaft and shunted brushes that can be replaced without taking the tool apart. The drills are enclosed in a ventilated aluminum housing, are equipped with an adjustable handle and



a breast plate and a double pole, double break safety switch with catch is provided. The larger drill has a capacity of  $\frac{1}{2}$  in. in steel and  $\frac{3}{4}$  in. in hardwood, weighs 15 lbs., is 20 in. long, with a speed of 650 rpm. at no load and 330 rpm. at full load. The smaller drill operates at a no load speed of 1,000 rpm. and a full load speed of about 600 rpm., is 18 in. long and weighs 13 $\frac{3}{4}$  lbs. Its capacity is  $\frac{3}{8}$  in. in steel and  $\frac{5}{8}$  in. in hardwood. The drills are driven by universal type Westinghouse motors.

### Safety Hand Lamps

Crouse-Hinds Company, Syracuse, N. Y., is beginning production of a line of safety hand lamps designed for service in railroad shops, garages and industrial plants. A terminal is provided for a safety circuit wire in the connecting cord for grounding the guard and other metal parts not connected with the electrical circuit. The handle is black enameled maple with a metal bracket on which the ground terminal is mounted, which also provides a cord strain relief and support for the lamp socket as a unit.

### News of the Manufacturers

The Standard Electric Stove Company has appointed new representatives as follows:

Morris Jones, Philadelphia, for Pennsylvania; J. F. Lamar, Kansas City, Mo., for Nebraska, Oklahoma and Kansas; Royal Smith, Dallas, Tex., for Texas.

J. G. Rossiter, formerly with the Reynolds Spring Company, Reynolite Division, is now associated with the Circle F Manufacturing Company, Trenton, N. J.

"When Evening Shadows Fall" is the title of a new booklet issued by Moe-Bridges Company, Milwaukee, Wis., which is being distributed to people answering its advertisements. It is a beautifully printed booklet with many illustrations of lighting fixtures in the various rooms of a home. The Moe-Bridges Company has just established a department of interior decoration to assist dealers in helping customers select their lighting equipment.

The Graybar Electric Company has announced the opening of new distributing houses in Flint, Michigan, in charge of H. W. Tinscher, and Rochester, New York, of which J. A. Royce is sales manager.

### STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, OF "THE ELECTRAGIST," published monthly at Utica, N. Y., for October 1, 1927:

State of New York, )  
County of New York, ss.:

Before me, a Notary Public in and for the State and County aforesaid, personally appeared S. B. Williams, who having been duly sworn according to law, deposes and says that he is the Editor of "THE ELECTRAGIST," and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Association of Electragists—International, 15 W. 37th Street, New York, N. Y.  
Editor, S. B. Williams, 15 W. 37th Street, New York, N. Y.

Managing Editor, none.  
Business Manager, Laurence W. Davis, 15 W. 37th Street, New York, N. Y.

2. That the owner is:  
Association of Electragists—International. Not incorporated. Composed of 2,000 members, of which principal officers are:

Clyde L. Chamblin, 687 Mission Street, San Francisco, Cal.

Laurence W. Davis, Secretary-Treasurer, 15 W. 37th Street, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent. or more of total amount of bonds, mortgages, or other securities are: none.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the Company, but also, in cases where the stockholder or security holder appears upon the books of the Company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signature of) S. B. WILLIAMS,  
Editor.

Sworn to and subscribed before me this 29th day of September, 1927.

MAY E. CASLIN.

(My commission expires March 30, 1928).